NetWare on Linux: Sooner than expected. PAGE 10 Future Watch: Technology promises to tame data complexity. PAGE 31

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JUNE 30, 2003 • VOL. 37 • NO. 26 • $5/COPY

Offshore's Rise Is Relentless

Issue is a sensitive one for execs, who say cost outweighs controversy

BY PATRICK THIBODEAU
LOS ANGELES

OUTSOURCING WATCH

Offshore outsourcing is so mainstream that by next year, more than 80% of U.S. companies will have had high-level discussions about the topic. And 40% will have completed some kind of pilot program or will be using nearshore or offshore services.

Despite that assessment, made by Gartner Inc. at an outsourcing conference here last week, offshore outsourcing remains a difficult issue for executives to talk about. In fact, many attendees were skittish about responding to questions for this article, except in the most general terms.

Corporate officials did, however, acknowledge trends related to the politically charged issue. For instance, BP PLC in London is discussing offshore work with its existing outsourcers, IBM and Accenture Ltd. "They are offering us an opportunity to have consistent performance at a lower cost," said Russell Taruscio, downstream chief financial officer at the oil company.

Adding offshore components to outsourcing contracts is on the rise, according to IDC. In a report last week, the Framingham, Mass., research firm said offshore outsourcing

Outsourcing, page 16

Regulatory Requirements Place New Burdens on IT

Calif. privacy law to debut; panic emerging

BY DAN VERTON

Costly legal battles and knee-jerk decisions on security are threatening to disrupt companies that do business with California residents.

LEGAL ISSUES

Tomorrow, a state privacy law with nationwide reach takes effect. Security and legal experts predict that the law will burden companies with massive class-action lawsuits and could change the way corporations approach wireless technology

Privacy Law, page 53

U.S. firms scramble to comply with EU tax

BY MATT HAMBLEN

The European Union's 15 member nations tomorrow will begin imposing a value-added tax on digital sales to residents by non-European companies, a plan that has forced many U.S. businesses to undertake months of legal and technical preparations.

Complicating matters is the fact that the VAT varies from country to country, ranging from 15% in Luxembourg to 25% in Denmark and Sweden. As a result, some U.S. companies have had to choose between two costly alternatives: updating their e-commerce systems to track sales and initiate VAT payments at the various rates, or setting up new operations in one of the member countries so they can apply its tax rate to all digital sales throughout the EU.

Items Subject to the European Union's New VAT

- Software downloads
- Web hosting
- Online databases
- E-learning technology
- Electronic images
- News services
- Music downloads

"It's one more onerous process forced on people trying to do Internet e-commerce," said Joel Ronning, CEO of Digital River Inc., an Eden Prairie, Minn.-based company that develops and manages e-commerce Web sites for businesses. "It's turning into a mess."

Digital River, whose clients include Motorola Inc., 3M Co. and Staples Inc., has spent "millions of dollars" to get ready for the VAT, Ronning said. As part of its prepara-

European VAT, page 53

HILTON CHECKS INTO NEW SUITE

FIELD REPORT

Hilton Hotels Corp. is upgrading its PeopleSoft suite, converting to a three-tier Web architecture, scrapping Unix servers in favor of Windows servers and replacing its database software – all at the same time. Gary H. Anthes reports on this complex IT overhaul, which is already saving millions of dollars. Page 25

MANUELLO PAGANELLI

Damien Bean, vice president of corporate systems at Hilton

W3C Cleans Up SOAP Standard

But it's unclear when vendors will adopt Version 1.2 of protocol

BY CAROL SLIWA

When Motor Coach Industries Inc. launched its maiden Web services last year, some messages didn't go through, and others reached their destinations only in partial form.

John Morrison, CIO at the Schaumburg, Ill., bus manufacturer, said it took three to four weeks to trace the problem to differing implementations of SOAP from vendors of Web services tools.

"One vendor would say, 'You've got to do it this way.' Another vendor would say, 'This is the way we do it,' " recalled Morrison. "It boiled down to a noncomplete set of standards that everyone was implementing differently."

That should change at some point, although it's unclear when. The World Wide Web Consortium announced last

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NEWSPAPER

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Steps to Securing Your Company

SECURITY: Security expert and author Eric Cole outlines his four general principles to make an organization secure.
QuickLink 39454

Improving Web Performance

WEB SITE MANAGEMENT: Read how application delivery networks reduce the response time and increase the availability of dynamic Web apps hosted at a centralized data center.
QuickLink 39505

SMI-S Successor to Bluefin on Fast Track

STORAGE: The first customers could be using the storage management interface specification by the end of the year.
QuickLink 39242

Before Going Wireless, Plan a Site Survey

MOBILE/WIRELESS: Companies that are looking to set up wireless networks need to get some preliminary work done first, an 802.11 Planet conference speaker advises.
QuickLink 39480

Research Reports

RESEARCH: In partnership with InfoEdge, *Computerworld.com* offers an extensive selection of IT and business research for IT professionals from dozens of third-party analyst and consulting firms.
QuickLink a3350

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AT DEADLINE

Microsoft Adds New Exchange License

Microsoft Corp. today plans to release Exchange Server 2003 for manufacturing and announce a per-user client-access license for the messaging software. The new license will let a single end user access Exchange Server 2003 from a variety of devices, said Microsoft, which licenses the current version of Exchange on a per-device basis. The upgrade is due to ship in the third quarter.

3Com Reports Loss, Joint Venture Delay

Santa Clara, Calif.-based 3Com Corp. reported a $38.4 million net loss on revenue of $175 million for its fourth quarter, which ended May 30. The company also disclosed that a networking joint venture with Shenzhen, China-based Huawei Technologies Co. is now expected to become fully operational by November, two months later than planned. 3Com CEO Bruce Claflin blamed the delay primarily on internal IT issues.

Sun Buys Java Software Vendor

Sun Microsystems Inc. said it has agreed to acquire Pixo Inc., a vendor of Java-based server software that manages the distribution of digital content to mobile devices. Sun will pay an undisclosed amount of cash for San Jose-based Pixo and fold the company into its software unit. The deal is expected to be completed by September, Sun said.

Short Takes

HEWLETT-PACKARD CO. plans to resell SuSE Linux AG's version of Linux and said it will release a line of clustered Linux systems in August. . . . A law firm representing shareholders of ELECTRONIC DATA SYSTEMS CORP. said it plans next week to file a class-action lawsuit that consolidates 15 separate complaints against the Plano, Texas-based IT services firm.

PeopleSoft User Panel Opposes Oracle's Offer

Head of advisory board says buyout bid poses threat; Oracle continues pursuit

BY TODD R. WEISS

ORACLE CORP. last week said it will continue its hostile takeover bid for rival PeopleSoft Inc. despite recent changes in a proposed merger deal between PeopleSoft and J.D. Edwards & Co. Meanwhile, PeopleSoft's global customer advisory board announced that it "firmly supports" the company's decision to reject Oracle's sweetened buyout offer.

Peg Nicholson, president of the advisory board and CIO at golf equipment maker Acushnet Co. in Fairhaven, Mass., said in a statement that Oracle's tender offer for PeopleSoft is "clearly anticompetitive" and poses a threat to existing investments in PeopleSoft's business applications.

"We feel strongly that an Oracle acquisition of PeopleSoft would reduce competition and force PeopleSoft users to migrate from their current applications and possibly [their] database platforms," she said. "This unnecessary, expensive and risky effort is clearly not in the best interest of PeopleSoft customers."

> **"An Oracle acquisition of PeopleSoft would reduce competition and force PeopleSoft users to migrate.**
>
> **PEG NICHOLSON,** CIO, ACUSHNET CO.

Unnecessary Alarm

In response, Oracle said that Pleasanton, Calif.-based PeopleSoft "has unnecessarily alarmed its own customers in a cynical effort to distract attention from the tangible benefits of our offer."

When Oracle announced its takeover bid on June 6, CEO Larry Ellison said the company wouldn't actively sell PeopleSoft's applications to new customers, a comment that led some PeopleSoft users to react with dismay. But Ellison more recently promised to continue developing PeopleSoft's products for at least 10 years and said users won't be forced to convert to Oracle's E-Business Suite 11i applications.

After increasing the value of its offer from $5.1 billion to $6.3 billion on June 18, Oracle last week took another step to show that it's serious about proceeding. The company said it would waive a condition in its tender offer that stated it would go forward only if PeopleSoft and Denver-based J.D. Edwards didn't modify the merger agreement they announced on June 2.

PeopleSoft and J.D. Edwards did amend the deal two weeks ago in an effort to speed up the merger and potentially block an Oracle takeover. Although Oracle is pushing on, company spokesman Jim Finn said it still views the amended merger agreement as "an unlawful device" and called on PeopleSoft's board to meet with Oracle executives.

But PeopleSoft was unimpressed. "Oracle is just blowing smoke again," said spokesman Steve Swasey.

In another development, representatives of various state attorneys general held a conference call June 24 to discuss the possible antitrust ramifications of Oracle's takeover bid. The call followed the filing of an antitrust lawsuit against Oracle by Connecticut's state government, which is in the midst of a $100 million PeopleSoft project.

But officials from Texas and California said such calls are routine and added that they haven't made any decisions to intervene in the buyout fracas. "This is a standard fact-finding process," said Tom Kelley, a spokesman for the Texas attorney general's office.

MORE ONLINE

Oracle's Bid for PeopleSoft: Visit our Web site for additional coverage:
QuickLink a3320

Product News: Oracle announced an upgraded applications release at a user conference in London:
QuickLink 39554
www.computerworld.com

Government Certification of Software Proposed to Boost Homeland Security

BY DAN VERTON
WASHINGTON

The U.S. Department of Homeland Security is emphasizing government security certifications as a means of improving software security while avoiding more invasive government intervention.

The policy of the current administration, as with the previous two, has been to allow market forces to drive security improvements in the software industry. However, with little evidence of the effectiveness of that approach, the government's commitment to fostering change is under scrutiny.

At a homeland security conference here sponsored by the Center for Strategic and International Studies and the Information Technology Industry Council, Microsoft Corp. Chairman Bill Gates last week expressed staunch support for government testing, certification and rewards for security improvements.

SECURITY GATES
Microsoft Chairman Bill Gates sees software security as key to homeland security:
QuickLink 39493
www.computerworld.com

That approach is backed by Robert P. Liscouski, assistant secretary for infrastructure at DHS, who distinguished government certification from the type of regulation the administration opposes. He said that although private-sector decisions about security always come down to a business-case analysis, companies are often forced to make poor software choices, given the state of software quality and security.

"If we can get the risk management industry to recognize good practices that can be certified . . . I don't see that as regulation," he said. "I see that as a very positive incentive to get the industry to go where it has to go."

Dave Carey, president of information assurance at Oracle Corp. and a former CIA officer, said that although Oracle supports various government certification processes, such as the Common Criteria and Federal Information Processing Standard 140, "they are neither easy nor cheap."

On average, evaluations of Oracle products have taken eight to 10 months and cost about $1 million each, said Carey. "But once done, customers can have the confidence that the security features in the products they buy function as intended," he added.

Whit Diffie, chief security officer at Sun Microsystems Inc., said the certification process can be shortened, but reducing its cost will require significant changes to the overall testing architecture and methodology.

CIA-Supported Storage Virtualization Start-up Emerges With SAN Appliance

Device integrates storage capacity on multivendor arrays

BY LUCAS MEARIAN

Candera Inc. this week plans to go public with a storage virtualization device after two years of development, joining the race to provide users with technology that can combine different storage subsystems into virtual pools of data.

Milpitas, Calif.-based Candera will announce the release of its SCE 510 appliance, a combination switch and virtualization product that works on multivendor storage-area networks (SAN). The start-up, which has been partly funded by the CIA, is selling the systems in clustered pairs that operate separately from each other but can balance workloads between them.

Candera's promise is straightforward: The company says that using application programming interfaces based on standards like XML, HTTP and the Simple Network Management Protocol, the SCE 510 can work with any SAN switch to virtualize the storage capacity on various arrays so it all looks like a unified pool.

The new appliance can automatically identify devices on SANs by disk type, vendor and the level of supported redundancy protection, allowing systems administrators to set up dynamic provisioning policies for different types of data, according to Richard Meyer, Candera's principal engineer.

Market Rivals

The SCE 510 will compete against virtualization products from vendors like IBM and Hewlett-Packard Co., as well as Brocade Communications Systems Inc.'s virtualization-enabled SilkWorm Fabric Application Platform switches.

A senior storage architect at a Global 100 company said he's leaning toward the Candera box over rival virtualization technologies from IBM, FalconStor Software Inc. and DataCore Software Corp. because the SCE 510 was developed with redundancy and high availability in mind.

The other products run on commodity hardware that could prove to be a point of failure in his SAN, said the storage architect, who asked that he and his company not be identified. In contrast, Candera is using a pair of specialized processors designed to handle heavy-duty workloads.

A vice president of architecture and capacity planning at a large financial services firm, who also asked to remain anonymous, said his company beta-tested the SCE 510 last month and plans to roll it out in September. The device should let IT staffers manage all the disk arrays on the firm's 50TB SAN through a single interface, the executive said.

But he added that the SCE 510 is missing two key features: support for migrating data from direct-attached storage devices to SANs, and data replication capabilities for disaster recovery applications.

Meyer said he has heard the same comment from other potential users and added that both of those features are in development. But he couldn't say when they're due to become available.

Mike Fisch, an analyst at The Clipper Group Inc. in Wellesley, Mass., said Candera's product could make a splash in the storage management market because it addresses key user requirements, including logical unit-number mapping, capacity planning and dynamic provisioning.

Candera is also jointly developing security-related hardware and software features with In-Q-Tel Inc. in Arlington, Va., a nonprofit company that acts as the CIA's technology funding arm [QuickLink 33889]. Those features include support for the Lightweight Directory Access Protocol and Secure Sockets Layer standards and should be added to the SCE 510 in the fourth quarter, Meyer said. ▶

TECHNOLOGY DETAILS

Candera's SCE 510

- Functions as both a storage switch and a virtualization device.
- Supports AIX, HP-UX, Solaris and Windows.
- Provides a virtual pool of storage from multivendor arrays.
- Starts at $100,000 for a clustered pair of appliances.

HP Expands Its Storage, Disaster Recovery Services

Offerings include system assessments, installation of SAN management software

BY LUCAS MEARIAN

Hewlett-Packard Co. last week announced five storage management and disaster recovery services in a bid to take advantage of an uptick in storage-related consulting that's being driven by tight IT budgets.

The services being offered by HP include assessments of how to optimize storage systems, data replication deployments, and development of disaster recovery and storage-area network (SAN) management architectures. HP said it will offer the storage services as part of both straightforward consulting engagements and more comprehensive deals that also include technology installation and training.

Charlie Orndorff, CIO at Crossmark Inc., an advertising and marketing company in Plano, Texas, said he currently uses both HP and Veritas Software Corp. for IT services on some storage projects. His dealings with HP may be widened over the next few months: Orndorff intends to merge 7TB and 4TB SANs to reduce his staff's storage management headaches, and he's eyeing HP's disaster recovery and business continuity services as part of that plan.

"What you really need is a comprehensive solution that says, 'If I go down, my data will be available in one hour, four hours or whatever the SLAs are that are in place,' " Orndorff said. He added that he also doesn't want to have to hire specialized IT technicians to manage different aspects of the combined SAN as Crossmark installs more complex storage technology.

Robert Gray, an analyst at IDC, said the use of IT vendors to help design and implement storage systems is on the upswing because companies want to get the most out of their technology purchases in the current economic climate. Storage vendors "had been selling the product and walking away, leaving [IT managers] underusing what they invested in," Gray said.

The disaster recovery management service is available now, said Gary Wright, vice president of HP's Network Storage Services division. The other services announced last week are scheduled to become generally available worldwide by the end of the third quarter.

Gartner Inc. analyst Adam Couture said the announcement was largely a case of HP formalizing storage services that it and the former Compaq Computer Corp. had offered separately through their respective consulting staffs.

HP is also reducing the maximum fees that users of its StorageWorks XP128 and XP1024 disk arrays could pay under its metered pay-per-use pricing plan, Wright said. Before, companies adopting the metered pricing may have paid up to 25% more than the standard monthly lease cost for the arrays, depending on how much of the available storage capacity they actually used. Now, HP is limiting the extra fees to no more than 5% above the regular price. ▶

HP's New Storage Services

- **Storage optimization consulting** that offers recommendations for increasing data availability and storage efficiency. **PRICING:** Starts at $10,000.
- **Implementation of data replication technology,** such as data snapshot and remote mirroring capabilities. **PRICING:** From $10,000 to $60,000.
- **Development of disaster recovery plans** that use in-house backup sites or 50 facilities that HP has set up worldwide. **PRICING:** About $100,000.
- **Deployment of SAN management systems** based on HP's OpenView Storage Area Manager software. **PRICING:** From $10,000 to $100,000.
- **A data sanitization program** designed to ensure that information is erased from disks or tapes being thrown away. **PRICING:** $7,000 per terabyte.

STORAGE DOWNLOAD

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QuickLink k1700
www.computerworld.com

BRIEFS

Ericsson Taps IBM To Manage Apps

LM Ericsson Telephone Co. said it has signed a preliminary agreement to outsource development and maintenance of its IT applications to IBM. The deal came three weeks after Stockholm-based Ericsson announced a five-year contract for Hewlett-Packard Co. to manage its IT infrastructure [QuickLink 38933]. Ericsson expects to finalize the IBM deal by September.

EDS Set to Raise $1.7B in Funding

Electronic Data Systems Corp. announced that it expects to raise $1.7 billion in new funding through private debt offerings. The deals followed decisions by two major credit-rating agencies to downgrade their ratings of the struggling IT services firm's debt. Plano, Texas-based EDS said it will also prepay $227 million that it owes to an unidentified software vendor.

Palm Reports Smaller Q4 Loss

Palm Inc. remained in the red during its fourth quarter, but the handheld vendor said its results were better than expected. Milpitas, Calif.-based Palm reported a $15 million net loss on revenue of $225.8 million for the quarter, which ended May 31. The loss was about half as big as what Wall Street analysts had forecast. In comparison, Palm had a year-earlier deficit of $27.5 million.

Short Takes

COMPUTER ASSOCIATES INTERNATIONAL INC. and STEELCLOUD INC. announced a deal under which Dulles, Va.-based SteelCloud will build CA's eTrust security software into a line of antivirus appliances. . . . IBM added versions of its WebSphere Commerce and WebSphere MQ middleware products that are tailored for midsize companies.

MARK HALL ▪ ON THE MARK

Wireless Handheld World Is a 'Wild West'. . .

. . . that creates vendor shootouts to attract developers — whether independent software vendors or in-house programmers. "Unlike PCs, there are **enormous real differences in handheld devices** that challenge developers," says David Nagel, offering a litany of distinctions, from multiple screen sizes and keypad styles to the operating system and wireless service provider being used. The CEO of PalmSource Inc. in Sunnyvale, Calif. — the company that licenses the Palm OS — also points out that 400 million to 500 million smart phones, BlackBerry-style devices and other wireless-ready mobile devices are shipped each year, vs. about 100 million PCs. That makes it at once the most confusing and most promising growth market around for developers. And because it lacks a dominant Microsoft presence, Nagel says, "it's like early Wild West for developers, with wide-open territory." Amid this chaos, handheld vendors are desperate to get developers to settle down with their systems and tools. ▪ Which explains **last week's branding brouhaha known as Windows Mobile.** Irwin Rodrigues, Microsoft's lead project manager for mobile devices, acknowledges that the event could be summed up as "a message to developers" that the company now has "a single API tool set for Pocket PC and Smartphone." Why spend all that money on invitations, tchotchkes, press releases and the rest **when a simple e-mail to a Virtual Basic developer list would do?** Well, just as Sun Microsystems Inc. held its high-priced JavaOne revival meeting for "wireless Java" two weeks prior, Microsoft can't afford not to attract IT early in its embrace of wireless handhelds. ▪ Corporate interest and the adoption of wireless applications is changing the demand mix for handheld applications. So even developers who dwell in the IT netherworld of middleware are seeing opportunities in wireless handhelds. Markham Tate, vice president of business development at SpiritSoft Ltd. in Milford, Mass., says his company is releasing a J2EE-compliant messaging application called SpiritLite so **IT can push technology updates to handhelds.** Expect it to be ready by summer's end. ▪ That shift in application demand is obvious to Ryan Wuerch, CEO of Nashville-based PalmGear.com. While virtually all categories are growing among the 18,000 Palm OS programs available on his company's site, the **games category is suddenly losing ground to business software** such as productivity applications. Wuerch likens the path of wireless software adoption to the early PC days and argues that the handheld market is following a similar trajectory. And, like the PC, handhelds will prevail over the prior technology. (So move over, Wintel.) By 2010, Wuerch assumes, your workforce will include many who have the power of today's desktop in a handheld and use it occasionally with the cradles, keyboards and displays found in offices, homes, hotels, coffee shops and wherever else their legs take them. The PC isn't in his scenario. ▪ If the wireless market walks away from Wintel, it will **certainly be a kick in the head for the "tel" part,** which has so much at stake in your persistent replacement of PCs with newer, faster models. But it's already taken one on the chin, because if you really want the newest, fastest desktop, don't look for the "Intel Inside" logo. **In August, Apple Computer Inc. will ship the fastest desktop around,** the Power Macintosh G5 64-bit workstation running OS X. The SPEC CPU 2000 benchmark reveals an Apple dual-processor G5 that's about 40% faster than the hottest dual Intel Xeon processor desktop. Much of that comes from the 8GB of RAM you get, twice that of a 32-bit system. Depending on their need for speed, users will shell out from $1,999 to $2,999 to have the fastest hardware in town. ▪ Before you sign a contract with Apple for a truckload of new Macintoshes, think about **getting your company's contracts under control** with an upcoming release (No. 19, to be exact) of the Determine Application Suite, an online contract management application from San Francisco-based Determine Software Inc. Among other improvements, the Aug. 14 upgrade will be able to track and audit changes to Word documents used in the contract development process. So be careful what you say, especially about contract lawyers. ◗

SecureDeals

Today, RadView Software Ltd. in Burlington, Mass., unveils WebLoad 6.0, a software test product that emulates Web user activities on a browser running on any platform. You even get to test Web services operations with the release. It'll cost you $7,595.

Microsoft Freed From Carrying Sun's Java

BY GRANT GROSS
WASHINGTON

An appeals court last week reversed a lower court's ruling that Microsoft Corp. must distribute a version of Java endorsed by Sun Microsystems Inc. But the appeals court also affirmed a ruling that Microsoft violated Sun's copyright by distributing its own version of Java with its products.

Both companies claimed victory after the Fourth U.S. Circuit Court of Appeals announced its decision on June 26, another step in Sun's private antitrust lawsuit against Microsoft.

U.S. District Court Judge Frederick Motz erred in his Dec. 23 ruling requiring Microsoft to carry the Sun-compatible version of Java with its operating systems and browser products, since there was no proof that Sun would suffer "immediate irreparable harm" without the order, appeals court Judge Paul Niemeyer wrote.

The appeals court did uphold Motz's order prohibiting Microsoft from distributing any version of Java other than the one allowed by Sun in a 2001 license agreement.

Microsoft spokesman Jim Desler called last week's ruling a "positive step," saying the must-carry order was the key issue that needed resolution on appeal. As for the copyright infringement order, Microsoft already complied in February, replacing Windows XP Service Pack 1 with XP SP1a, which excludes Microsoft's Java virtual machine.

Lee Patch, Sun's vice president for legal affairs, called the appeals court ruling on the copyright infringement issue "an important victory for the Java community."

"This decision confirms that Microsoft violated our prior settlement agreement, and that it did so in a way that continued to fragment the Java platform on PCs," Patch said. ◗

Gross writes for the IDG News Service.

Has your Web Hosting provider left you dangling?

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NetWare on Linux Coming This Year

Novell surprises users with plans to speed up delivery of services on Red Hat, SuSE

BY MATT HAMBLEN

NOVELL INC. is poised to begin delivering on its NetWare-on-Linux promise considerably sooner than many users expected.

OPEN-SOURCE

Novell announced at its Brainshare conference in April that it was adopting Linux as its NetWare migration path by making NetWare 7 — due out in two years — a set of services that would run on both the Linux and NetWare kernels [QuickLink 37843].

But last week, Novell said a key set of NetWare services running on Linux — including directory, file, print, messaging and management services — will be made available later this year. Novell Nterprise Linux Services 1.0, which constitutes about 60% of the NetWare services stack, will run on Red Hat Enterprise Linux and SuSE Linux Enterprise Server. It will go into limited beta at 150 sites next month, Novell officials said.

Several users gave the move an unqualified thumbs up.

Doug Boval, master network engineer at St. Vincent Hospital in Indianapolis, said the medical facility could benefit from Novell support for Linux in many ways, including the possibility of moving away from "costly Windows-based desktops to Linux desktops." NetWare on Linux also would be a compelling alternative to some applications running on high-priced Unix systems, he said.

Scott Perley, president of the Southern Alberta Novell Users Group in Calgary, also welcomed the move, saying he's looking forward to using such products as Novell's iFolder file services on Linux.

Users had every reason to be surprised by last week's announcement, since Novell officials at Brainshare suggested that NetWare services wouldn't be available on Linux until the relatively distant release of NetWare 7. Those officials are now saying that they planned all along to make some services available on Linux sooner but hadn't developed the road map sufficiently to make an announcement at Brainshare.

"We in fact knew a lot at Brainshare, but we didn't know enough," Jeff Hawkins, vice president of Novell's Linux business office, said last week. "We were well along the way of driving the engineering efforts and aligning all of the organization behind this product release, but we weren't prepared to make any announcement at Brainshare about the actual product itself."

Hawkins indicated that Novell will use the launch of NetWare 6.5 this summer to push the new Linux offering.

"There probably will be [a connection between NetWare 6.5 and Nterprise Linux Services 1.0] as we look at how we get our current customers to embrace it," he said. "Those are going to be pricing and deployment strategies. We're not announcing those right now, but you can imagine that those are pretty important conversations that are happening."

John Enck, an analyst at Gartner Inc., said users that plan to adopt Linux but have never considered NetWare may like Novell's Linux strategy because Novell has "stronger directory and file/print services than the open-source community provides."

Novell last week also announced agreements with Dell Computer Corp., Hewlett-Packard Co. and IBM under which the hardware vendors will offer Novell's Linux products on their servers and collaborate with Novell on Linux training and support.

Jim Stallings, general manager for Linux at IBM, predicted that Novell's move to support Linux will put pressure on companies like Microsoft Corp. "that have proprietary architectures and that charge exorbitant fees for them." ◗

NEW PRODUCT

Novell Nterprise Linux Services 1.0

The software will enter beta-testing next month; pricing wasn't disclosed. Services include:

- Novell eDirectory and DirXML
- Novell iFolder
- Novell iPrint
- Novell iManager
- NetMail
- ZENworks for Servers
- Virtual Office via Extend Director Standard Edition

Computerworld's Don Tennant contributed to this report.

Flashline Promises to Cut Redundant Development

'Super-registries' in Version 4 organize software assets

BY CAROL SLIWA

Flashline Inc. today will announce a new version of its 3-year-old portal-like flagship product that's designed to help companies manage and reuse software assets they built using Web services, Java, .Net, open-source and model-driven development methods.

Flashline 4 features five preconfigured "super-registries," called FlashPacks, to organize a company's software assets, said Charles Stack, CEO and founder of the Cleveland-based company. A FlashPack serves as a central hub where developers can go to evaluate projects their colleagues are working on or have completed in specific development areas, such as Web services, Java or Microsoft Corp.'s .Net.

FlashPacks include XML-based schemata to describe the software assets, sample metadata, reports that measure the usage of the assets and extensions to automatically populate the registry.

The Flashline Registry Advanced Edition introduces a graphical navigator to identify how software assets are related to particular projects and map those relationships between the various projects. Coupled with new assets-in-progress capabilities, the navigator can help reveal similar ongoing development efforts within or among projects, so teams can eliminate redundant work.

WHAT'S NEW

Flashline 4

- **FlashPacks** to organize and manage software assets for Web services, Java, .Net, open-source and model-driven development
- **A graphical navigator** to identify relationships between software assets and similar ongoing development projects
- **More comprehensive metrics** to compute return on investment
- **Finer-grained** role-based security

SOURCE: FLASHLINE INC., CLEVELAND

To help teams meet their return-on-investment goals, Flashline is adding more comprehensive metrics to allow developers to see actual savings from every group that used a particular component, model or pattern, as opposed to merely showing the savings achieved by the group that created the component.

Other new features include finer-grained role-based security down to the asset level and support for clustering in IBM's WebSphere and BEA Systems Inc.'s WebLogic application servers.

Dale Hite, chief technology officer in the software architecture group at Fidelity National Financial Inc. (FNF) in Jacksonville, Fla., said he's particularly interested in Flashline 4's new ROI calculation capabilities and project hierarchy management enhancements, so that the relationships of components to projects and products can be inherited from one project to the next. About 250 of FNF's geographically dispersed developers use Flashline, which runs on a Linux-based WebLogic server, to collaborate on component-based projects, Hite said.

Rich King, a software engineer at Diebold Inc. in North Canton, Ohio, said his company began using Flashline about a year ago as part of a push toward component-based development of automated teller machine software using Microsoft's .Net tools.

"We wanted to be able to create custom applications in as short a time as possible with the highest quality possible," he said.

John Rymer, an analyst at Cambridge, Mass.-based Forrester Research Inc., said Flashline is pushing beyond mere storage, categorization, security and check-in/check-out capabilities in Version 4.

"They're providing some utilities that will help in maintaining, evolving and ultimately promoting much greater reuse of assets," he said.

Flashline 4 will be available at the end of July; pricing starts at $70,000 for 75 users. ◗

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INTERNET
SECURITY
SYSTEMS

More Vendors Rolling Out Sarbanes-Oxley Software

New tools are focused on automating checks of financial controls by users

BY THOMAS HOFFMAN

OPENPAGES INC. this week will become the latest vendor to offer software that's designed to help companies meet the financial documentation and reporting requirements of the Sarbanes-Oxley Act of 2002.

And like many other products that have been announced recently, the Web-based software suite developed by Westford, Mass.-based OpenPages specifically addresses Section 404 of the law. That section requires publicly held companies to conduct annual evaluations of their financial reporting controls and procedures.

Vendors such as Oracle Corp. and Redmond, Wash.-based Concur Technologies Inc. have also detailed Section 404 compliance tool kits [QuickLink 38820].

In addition, Protiviti Inc., a Menlo Park, Calif.-based firm that offers internal auditing and business-risk consulting services, last week introduced a Web-based repository for organizing and documenting Section 404 compliance plans.

OpenPages said its Sarbanes-Oxley Express 404 software is based on J2EE technology and runs on top of application servers from Oracle and San Jose-based BEA Systems Inc. The software is priced between $25,000 and $65,000, depending on the number of end users.

Many Units, One Database

Volt Information Sciences Inc., a New York-based provider of temporary staffing and IT services that has annual revenue of more than $2 billion, plans to finish installing the OpenPages software on a Windows 2000 server this week.

James J. Groberg, Volt's chief financial officer, said the company operates 12 business units, each of which has its own accounting and profit-and-loss (P&L) responsibilities. For financial reporting purposes, "you have to treat each one differently," he noted. But Volt is looking to develop a database that links the disparate accounting data under a single structured format.

After evaluating a handful of products, Volt in May settled on the one developed by OpenPages. Groberg said it helped that OpenPages was willing to make enhancements based on Volt's suggestions, including the creation of a master content chart of balance-sheet and P&L accounts.

But even though Sarbanes-Oxley compliance tools are becoming available from more vendors, many CIOs and other executives are still having a hard time comprehending the act's requirements. Sarbanes-Oxley, which was signed into law last summer, includes more than 90 sections and 300 discrete points of law.

Seeking Clarity

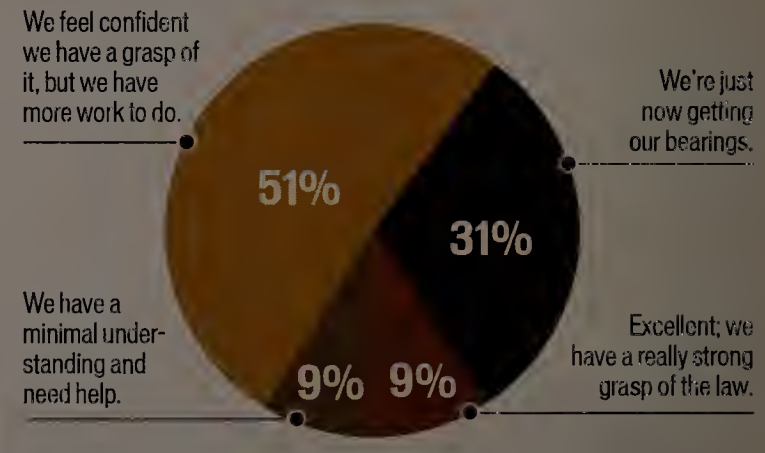
The mandates of Sarbanes-Oxley "aren't very clear," said Louis Boyle, a Meta Group Inc. analyst based in Hilton Head, S.C. "CIOs have been asking us, 'What is it? What do we need to do? How do we prepare for it?' "

The U.S. Securities and Exchange Commission, the Public Company Accounting Oversight Board and other regulators haven't specified what kind of information they're looking for from companies, said Groberg. "You're almost working in the dark in terms of what you're going to have to provide," he said.

Protiviti said its SarbOx Portal software is designed to provide users with a process-based approach to documenting and evaluating their financial reporting controls.

The software is being offered only to Protiviti's consulting clients, and a company spokesman said pricing "is being kept confidential."

How would you characterize your company's understanding of the Sarbanes-Oxley Act?



BASE: An online poll of corporate executives who took part in a June 26 webcast sponsored by *Business Finance* magazine; a total of 292 responses were received.

Intel Hopes Madison Will Boost Itanium Use

BY TOM KRAZIT AND ROBERT McMILLAN

If the third time really is the charm, then Intel Corp. and its hardware partners are set to reap the benefits of Madison, the third generation of the 64-bit Itanium processor family, being announced today.

Momentum is finally building behind Itanium as it evolves from a low-volume product to one that, with the introduction of Madison, will be more attractive to users, said Dean McCarron, principal analyst at Mercury Research in Cave Creek, Ariz.

Dell Computer Corp. last week released details about its new Itanium server, the Madison-based PowerEdge 3250, which is the company's first Itanium server since the launch of the inaugural Itanium chip. Dell skipped the second generation of Itanium, known as McKinley.

Dell decided to use Itanium again because Madison delivers a superior level of performance over the McKinley chip for the same price, said Darrel Ward, a Dell product manager. The PowerEdge 3250 is a dual-processor server that users can cluster in up to 128 nodes, Ward said. Its pricing and availability will be announced later this year.

Hewlett-Packard Co., IBM, Unisys Corp. and others are expected to make systems with the new processors available during or soon after today's launch.

Dell is backing Intel's new Itanium.

Itanium systems haven't appeared in many server rooms because of the lack of enthusiasm for Intel's EPIC (explicitly parallel instruction computing) instruction set, introduced with the first Itanium chip in May 2001.

Many companies use 32-bit x86 server processors such as Intel's Xeon, but some are deciding that they need to take advantage of a 64-bit processor's ability to store more data in memory, as well as the wider general-purpose registers that allow for better performance.

But in order to run applications on Itanium, users must port all of them to the new instruction set, which can be a time-consuming process.

Madison's increased performance will be an incentive to make that switch, especially for users of Microsoft Corp.'s SQL Server database, said Nathan Brookwood, principal analyst at Insight 64 in Saratoga, Calif. "SQL Server has really only existed on the 32-bit Intel Xeons, and databases are the horizontal application that benefit the most from 64-bit architectures," said Brookwood. "Anybody who is using SQL Server on Xeon and running out of gas is going to love this processor."

Advanced Micro Devices Inc. also offers an alternative for users contemplating a 64-bit architecture. The Opteron processor, launched in April, uses 64-bit extensions to the x86 instruction set to let companies keep some of their applications running at 32 bits while they port the applications that a 64-bit architecture will benefit the most.

Krazit and McMillan write for the IDG News Service.

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BRIEFS

Microsoft Blends Business Units . . .

Microsoft Corp. said it has combined its Windows server, storage software and developer outreach organizations into a single unit. Eric Rudder, a senior vice president who had been in charge of the developer operation, will head the merged unit. The company also named Peter Cullen chief privacy strategist, effective July 14. Cullen is now corporate privacy officer at Royal Bank of Canada in Toronto.

. . . And Warns of Windows Flaws

Microsoft warned of two newly discovered security vulnerabilities, including one that involves the Windows Media Services feature in server versions of Windows 2000. Microsoft gave the flaw an "important" severity rating and said attackers could use it to run malicious code on unprotected systems. The other hole is in Microsoft's Windows Media Player 9 Series software.

SAP, Oracle to Resell Adapters

Information Builders Inc.'s iWay Software Inc. unit in New York said SAP AG plans to resell a software adapter that connects SAP's NetWeaver integration technology to the UCCnet product data synchronization hub. Meanwhile, Attunity Ltd. in Wakefield, Mass., said Oracle Corp. will resell a set of adapters that link its Oracle9i Application Server software to mainframes.

Short Takes

GEAC COMPUTER CORP. in Markham, Ontario, said it has agreed to buy COMSHARE INC., a developer of corporate planning and budgeting software in Ann Arbor, Mich., for $52 million (U.S.) in cash. . . . ADVANCED MICRO DEVICES INC. said it will report lower-than-expected sales for the second quarter.

N.Y. Hospitals Part Ways on IT, Tap IBM

Outsourcing deals to separate systems, tech strategies

BY BOB BREWIN AND JUAN CARLOS PEREZ

IBM last week announced that it has signed contracts to manage the core computing systems of three New York hospitals, which are using the deals to dismantle a shared IT unit so each facility can set its own technology direction.

The agreements with Mount Sinai Hospital, New York University Medical Center and NYU Downtown Hospital go into effect this week and have a combined value of $380 million over the next 10 years, IBM said. Together, they represent the largest hospital IT outsourcing deal the company has won thus far.

The three hospitals began consolidating their IT departments in 1998, when they were combined under a nonprofit holding company called Mount Sinai NYU Health. They now share a data center at a Mount Sinai building in Manhattan.

During the next 18 months, IBM will transfer applications from that data center to redundant facilities it owns on Staten Island and in Rochester, N.Y. Dave Liederbach, vice president of IBM's health care industry unit, said the company will host all of the clinical and business applications for the three hospitals and provide disaster recovery and business continuity capabilities. "We're basically facilitating a restructuring and separation of their IT infrastructure," he said.

Richard Donoghue, senior vice president of strategy and business development at NYU Medical Center, said the IT requirements of the three hospitals have started to diverge. "The demands placed on the IT department by the hospitals were pulling the IT leadership in different directions and creating problems," he said.

For example, Donoghue said, NYU Medical Center wants to carry out an IT development plan at its own pace and according to its own priorities, without having to coordinate projects with Mount Sinai Hospital. Each hospital also wants to set an independent strategy for meeting the privacy requirements of the Health Insurance Portability and Accountability Act, he added.

The hospitals expect IBM to split the IT infrastructure into three entities by mid-2005, according to Donoghue. About 340 of the 500 staffers in the shared IT department will be shifted to IBM, he said. Other workers will be assigned to the individual hospitals, partly to help manage their outsourcing relationships with IBM.

Liederbach said he doesn't know how many applications IBM will host and support in total, but he noted that it could "run into the hundreds."

Although the outsourcing contracts are separate, they share one important element: the creation of improved disaster recovery capabilities. The move to set up redundant data centers is designed to ensure continuity of IT operations in the event of a natural disaster or an incident like the Sept. 11 terrorist attacks.

The attacks in 2001 destroyed NYU Medical Center's data center, which was near the World Trade Center complex. It took the hospital three days to restore its critical systems, whereas the contract with IBM stipulates that applications must be back in operation within 12 hours. ◗

Perez writes for the IDG News Service.

IBM's New Outsourcing Contracts

- Mount Sinai Hospital is handing over its entire IT infrastructure and all operations, including application development, to IBM under a 10-year deal.
- NYU Medical Center signed a 10-year deal that gives IBM responsibility for all IT operations except telephony and app development.
- NYU Downtown Hospital has an arrangement similar to NYU Medical Center's, except that its initial contract is for just two years.

Siemens Rollout Encrypts Medical E-mail Messages

Tool will help ensure HIPAA compliance

BY BOB BREWIN

Siemens AG's health care technology unit today plans to introduce a secure messaging system designed to ensure that electronic communications between patients and their doctors and between physicians and hospitals comply with data privacy laws.

PRIVACY

Sue Merk, director of community innovations at Erlangen, Germany-based Siemens Medical Solutions, said the new system supports the Advanced Encryption Standard and is built around technology from Sigaba Corp., a subsidiary of Secure Data In Motion Inc. in San Mateo, Calif.

The software can scale from small medical practices to the largest hospitals, Merk said. It uses a rules-based engine to check e-mail and instant messages for any personally identifiable information about patients, in keeping with the requirements of the Health Insurance Portability and Accountability Act (HIPAA).

Messages that have such data are then encrypted. End users can access encrypted e-mail by typing in a user name and password, which activates a Sigaba-developed secure key server. The system can also be beefed up to require the use of biometric identifiers such as thumbprints, Merk said.

Alegent Health, an Omaha-based nonprofit health care company that operates eight hospitals and 100 medical clinics, has signed on to use the new messaging system. Ken Lawonn, vice president of IT at Alegent, said the company views e-mail as an effective way to do business but also needs to ensure that it complies with HIPAA.

Alegent has 5,000 e-mail accounts, and Lawonn said it plans to run all external messages through the Siemens software. He added that he's also looking to use the system to support direct forms of communication, including e-mail billing and sending medical records to patients.

Alegent installed a small HP/Compaq server to run the software and paid an upfront fee of about $14,000. Siemens will bill Alegent on a per-message basis under an application service provider contract, Merk said. Doctors who practice at Alegent facilities pay $10 per month for unlimited access to the messaging system via a PC plug-in.

Lawonn said Alegent employees would have to send more than 1 million messages each year — a total that isn't realistically possible now — before the company would need to consider buying the Siemens software outright. ◗

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Continued from page 1

SOAP

week that Version 1.2 of SOAP — a key foundation-level technology for companies building Web services — has achieved "recommendation" status.

Recommendation status means SOAP 1.2, a set of rules for exchanging structured information among systems or organizations, is a fully vetted standard that has gone through a rigorous public-review process and substantive interoperability testing.

By contrast, SOAP 1.1 was a de facto standard that was never vetted by the W3C or any other standards body, said Don Deutsch, vice president of standards strategy and architecture at Oracle Corp. and a member of the W3C Advisory Board.

The W3C's XML Protocol Working Group, which was responsible for SOAP 1.2, identified and resolved more than 400 technical and editorial issues raised about the prior version. The group later tracked seven SOAP 1.2 implementations from various W3C member organizations and independent developers to ensure their interoperability.

SOAP 1.2 provides a more precise description of the processing model and removes ambiguities that sometimes led to interoperability problems for those trying to implement Version 1.1, said David Fallside, chairman of the W3C's XML Protocol Working Group and a senior technical staff member at IBM.

"By providing the processing model in greater detail and expanding the scope of cases that it covers, you significantly reduce the chances that two different people sent off to implement the specification would come up with implementations that are not interoperable," Fallside said.

SOAP 1.2

- Clarifies processing model
- Provides better integration with XML standards
- Is protocol-independent
- Allows performance optimization, because it's based on XML Infoset

But it's unclear when vendors will adopt SOAP 1.2. Deutsch said Oracle is committed to supporting the standard, but he couldn't say when that will happen because "to do anything meaningful" with SOAP, most tool kits depend on another standard, the Web Services Description Language (WSDL). The W3C is still working on WSDL 1.2. Deutsch said it will take "some time" for vendors to fully support all the features of SOAP 1.2, so during the transition period, SOAP 1.1 will co-exist with SOAP 1.2.

Jason Bloomberg, an analyst at ZapThink LLC in Waltham, Mass., said he thinks it will take a year or two for SOAP 1.2 to work its way into products. In the meantime, "vendors and end users are going to be annoyed at times at the fact that there are two [versions of SOAP]," he said. But he added that work is ongoing in the Web Services Interoperability (WS-I) Organization to create profiles on how to use standards such as SOAP.

Users will have to wait for SOAP 1.2's improvements, such as protocol-agnosticism. SOAP 1.1 confined users to sending messages over HTTP, but with 1.2, they will be able to choose other protocols, such as SMTP, TCP/IP, BEEP (the Blocks Extensible Exchange Protocol) and IBM's MQSeries, Fallside said.

"We expect a lot of people will flow XML messages over HTTP, so there is an HTTP binding for SOAP. But you don't have to use it," he said.

Bloomberg said HTTP was never designed for system-to-system communications. "HTTP was really designed for hypertext. HTTP is synchronous, and it's not secure. It's not reliable," he said. "So it's definitely good to support other protocols for different uses, whether it's message queuing protocols or asynchronous messaging protocols of other kinds."

Division of Labor

The W3C group working on SOAP 1.2 split the specification into two parts — essential SOAP (which includes the processing model, the extensibility framework and the message construct), and optional elements, such as the rules for representing a remote procedure call (RPC), encoding SOAP and describing an HTTP binding. Fallside said the separation breaks the old perception that SOAP is merely RPC over HTTP.

Another key change in SOAP 1.2 is that it's based on the XML Information Set, which provides a way of describing the information conveyed in an XML document. By contrast, pointy brackets were paramount with SOAP 1.1, which was based on XML 1.0 serialization, Deutsch said.

"The upshot is more flexibility in the representation of messages, so you can tailor or customize for your application/business requirements," he said.

Fallside said this will be helpful for companies that need to send more compact messages between applications via an extremely low-bandwidth connection. He said he expects that most companies will still use XML representations, since that will allow them to use off-the-shelf tools and applications. ◗

Continued from page 1

Outsourcing

is the dominant trend in the IT services industry, with 42% of the application management contracts now having some offshore component. A big reason is cost.

Bob Walters, IT director at supply chain system provider Intermec Technologies Corp. in Everett, Wash., surveyed development costs recently at an SAP AG user conference. He determined that U.S. companies are charging $80 to $120 per hour for programming work, while the fee for offshore providers is about $40.

When you can pay a third of the price, offshore is "something that has to be considered," said Walters.

As offshore business grows, so does competition for it. Pioneering India-based offshore companies, such as Tata Sons Ltd., are facing increasing competition from the large U.S. IT consulting firms. Accenture CEO Joe W. Forehand, who spoke at the Gartner conference, compared the trend to the previous exodus from the U.S. of many manufacturing operations. "The way we look at it, the industrialization of IT is a reality, and we have to embrace that," he said.

Competition is also becoming more global. In the vendor exhibit hall, Bamboo Networks Ltd.'s mere presence raised eyebrows. Some rivals said it was the first China-based outsourcer to set up a booth at a U.S. outsourcing conference.

China is considered something of a sleeping giant in the offshore world that isn't quite ready to compete with India. China "represents the next wave" in offshore outsourcing, said Traci Gere, an IDC analyst.

Rajesh Rao, chief operating officer at Hong Kong-based Bamboo, which operates an offshore development center in Guangzhou, China, said the company believes it has developed its offshore processes sufficiently to compete for U.S. customers.

One user of offshore services, Sudhir Agarwal, senior manager of architecture and services at Verizon Communications in New York, said India's talent pool, its populace's proficiency with English and the country's U.S. connections will ensure India a dominant role for years to come. But China's emergence "is good for companies in the U.S.," Agarwal added. ◗

Business Process Outsourcing Gains Momentum

LOS ANGELES

According to Gartner Inc., business process outsourcing (BPO) is on the rise, with outsourcing of the human resources component expected to grow the fastest. Approximately 85% of U.S. companies will outsource one or more human resources functions in the near future, with payroll processing often being the first step.

Key to any successful outsourcing relationship is the ability to measure the cost of providing existing services, said Gartner analyst Rob Brown.

Another hot BPO area is insurance. Liberty Insurance Services Corp., a subsidiary of Toronto-based Royal Bank of Canada, is one provider.

Its insurance BPO work can involve a combination of offshore and onshore development, said Ted Coia, vice president of the Greenville, S.C.-based subsidiary. But customer data stays in the U.S. An offshore center may see a policy image that requires data entry, but that's the extent of the interaction. Regulators don't like insurance data to go offshore, he said.

Insurance BPO covers a range or services, including transaction and claims processing, any kind of data entry, underwriting and policy administration. Gartner expects the insurance BPO market to increase from $6.8 billion this year to $8.9 billion by 2005.

Human resources outsourcing services are expected to reach $46 billion this year and $51 billion next year, Gartner said.

– Patrick Thibodeau

BASIC PROFILE

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Sun Exec Opposed to Open-Source Java

Schwartz: Current process produces uniform standard

BY CAROL SLIWA
SAN FRANCISCO

Jonathan Schwartz, *executive vice president of software at Sun Microsystems Inc., spoke with* Computerworld *at the company's recent JavaOne conference here about the possibility of Java becoming an open-source technology and other issues. Excerpts follow:*

Should Java be made fully open-source? The problem with open-source is that [victory] goes to volume, and that's evident in the Linux community today where ISVs [independent software vendors] are qualifying to Red Hat and abandoning everyone else. Why? Because Red Hat has volume.

If Java were open-source, Microsoft could take it, deliver it as they saw fit and drive a definition of Java that was divergent from the one that the [wider] community wanted to be compatible [with]. And to the victor would go the spoils of that nefarious action.

To the extraordinary credit of the Java Community Process [JCP], we have a uniform, compatible standard that now spans hundreds of millions of devices. You have to really be careful in understanding the distinction between open-source and open standards.

An IBM executive once told me those two terms mean the same thing. IBM is dead wrong, and I also think that IBM is somewhat duplicitously straddling that gap for its own benefit, exploiting the open-source community on the one hand and then on the other hand trying to derive a proprietary advantage from its implementations of open-source products.

Did IBM talk to you before including its proprietary graphical user interface technology, the Standard Widget Toolkit (SWT), in its open-source Eclipse platform? No. And I think what they've done with SWT violates really what you would want to do with the Java platform. No one wants "write once, run on this operating system." IBM has a lot of weight, and they don't like the JCP, I think in part because they can't throw their weight around. They are just one voice of many.

Sun gave all of the keynotes at JavaOne. Why did other key Java vendors have such a small presence? You'll notice that nobody from Sun got up and really talked about Sun products. We talked about the health of the [Java] community as probably the company that has the single biggest vested interest in its success. I think that the folks who came to JavaOne wanted that.

Some attendees noted IBM's near absence. I think it's an obvious absence. Microsoft wasn't here, either.

No one would have expected Microsoft. Now that we've settled the Java issue with respect to distribution, that's no longer an issue for Microsoft to manage explicitly. Who knows? Maybe we've got some partnering opportunities with Microsoft. We do have a common competitor in the form of IBM. . . . If they would abide by the contract, we would love to work with them. ◗

MORE ONLINE

To read more of Schwartz's thoughts about Java, go to our Web site:
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MARYFRAN JOHNSON

Beating the Odds

AT A TIME WHEN GOOD NEWS about IT is as unexpected as a winning lottery ticket, our story about Hilton Hotels' daredevil infrastructure upgrade is quite a standout (see story, page 25). It makes for especially welcome reading in the wake of the latest research decrying the dreary state of successful IT project completions.

MARYFRAN JOHNSON is editor in chief of *Computerworld*. You can contact her at maryfran_johnson@computerworld.com.

In a survey of some 2,000 companies (more than 800 of them in the Fortune 1,000), The Hackett Group in Atlanta found that unless a company is among the top 25% of technology users, three in 10 IT projects fail on average, and that less than 40% of IT managers have any faith that their departments can react quickly enough to changing business goals. On top of this, less than half of companies even bother to validate an IT project's business value after it has been completed [QuickLink 39300].

How many of these depressing studies and statistics have you read in recent years? Yeah, I've lost count too. The problem with them is how little they contribute to actually solving any of the real-world problems associated with complex IT projects.

That's what I found so riveting in reporter Gary H. Anthes' account of Hilton's megaoverhaul of its Unix client/server system. It's an honest, warts-and-all look inside a massive infrastructure upgrade — one that's been slogging away during the most prolonged downturn in IT history. Your company may not be the world-famous Hilton chain, but the problems encountered and solved by its IT group will still resonate with familiarity.

"We had every platform and operating system under the sun," says Damien Bean, Hilton's vice president of corporate systems. He also had 1,500 users standing by as potential front-line critics as the IT department gambled on a migration to PeopleSoft 8, Microsoft Windows 2000 Server and SQL Server 2000 running on Dell servers.

It was a move fraught with risk because none of those vendors had ever played together on a field as large as the one Hilton provides. "We were doing engineering that no one had ever done before," Bean noted. He took advantage of that — as the biggest customers can — by pushing the vendor trio to prove themselves. Microsoft, Dell and PeopleSoft each had to pony up the people, the expert support and the resources necessary to make this unproven three-tier Web architecture work.

Still, it didn't all go perfectly. That's the nature of IT projects.

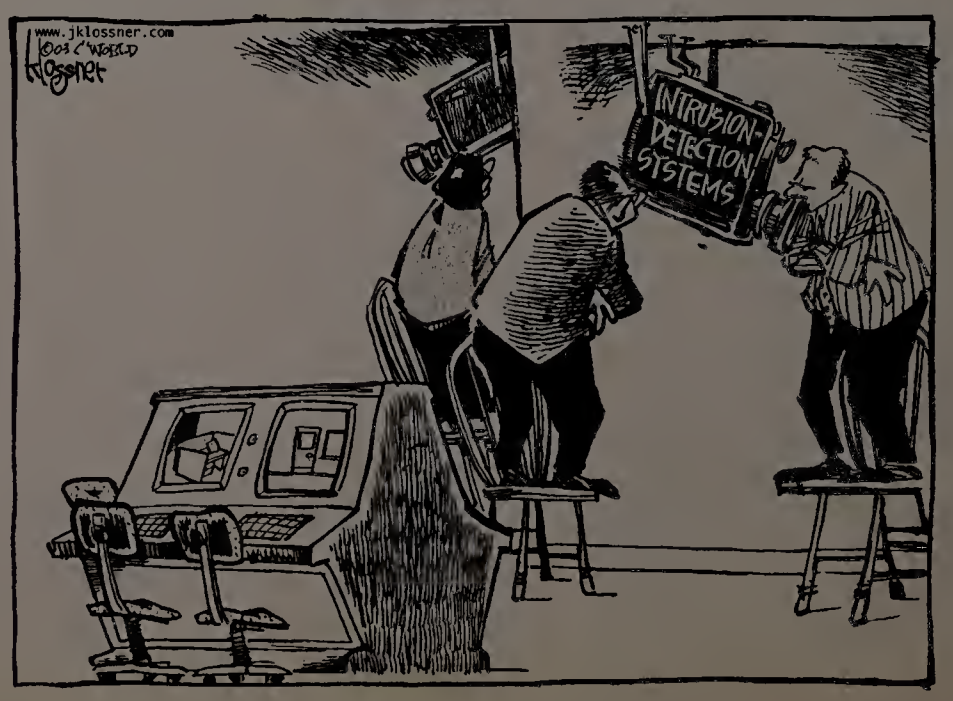
The biggest technology snafu hit on the first day of switching over to the new payroll system, but that high level of vendor attention paid off. The latest unpleasant surprise has more to do with industry politics and finance than technology: the looming threat of an Oracle takeover of PeopleSoft.

"What I have told everybody here at Hilton — and I've been getting a lot of calls from other big customers, too — is don't do anything yet," Bean told us last week. "Any decision you make now is going to be lousy, because there's not any good information." But he's confident that whatever happens can be handled.

That's the nature of IT leadership.

As the project heads into its final phase, the savings are already in the millions, and Hilton's controller is enjoying his newfound ability to close the books in roughly half the time he once did.

IT projects will always be targets of criticism. They'll always be a gamble because they involve such a volatile mix of people, technology, business and politics. But done right, as at Hilton, they can be better than a winning lottery ticket. ◗



PIMM FOX

Call Centers Grow Up

COMPANIES should turn their call centers into IT-equipped intelligence operations designed to provide e-learning, customer analysis and threat detection.

Best Buy, Starwood Hotels and Continental Airlines are doing just that, as if to disprove the notion that IT is history. They're using an intelligent software suite from Roswell, Ga.-based Witness Systems Inc. to randomly record both voice and data communications in order to improve customer service and the bottom line.

For example, Continental's four domestic reservation centers, which handle about 60 million calls annually, use IT for more than just measuring call levels. The airline takes the technology to greater heights, integrating the call review process with IT operations and business goals and letting management at company headquarters in Houston keep an eye on things.

This enables IT staffers to troubleshoot bugs and problems with the Web site in real time, thanks to electronic buckets in which reservation agents (there are nearly 5,000) place customer reports. Since the IT department can see the actual keystrokes that led to any problems, fixes are made more quickly. And those fixes are also less expensive to execute, because IT personnel don't have to fly to a reservation center in the hope of seeing a recurring glitch.

The system also helps agents group problems, questions and concerns according to criteria the airline perceives as important.

The system records up to 10 random calls per agent per month, but it also lets each agent flag calls for examination by a supervisor. For example, an agent who has trouble closing sales can select calls for review by a manager, who can then help him improve his performance.

And in Houston, managers can log onto the Windows NT system from

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The Top 10 Critical Challenges for Business Intelligence Success

More than half of all BI projects fail — make sure yours isn't one of them

Let's start with the bad news: More than half of all Business Intelligence projects are either never completed or fail to deliver the features and benefits that are optimistically agreed on at their outset. While there are many reasons for this high failure rate, the biggest is that companies treat BI projects as just another IT project. Face it: Business Intelligence, or BI, is neither a product nor a system. It is, rather, a constantly evolving strategy, vision and architecture that continuously seeks to align an organization's operations and direction with its strategic business goals.

Written by
Shaku Atre, President, Atre Group Inc.

With BI, business success is realized through rapid, easy access to actionable information. This access, in turn, is best achieved through timely and accurate insight into business conditions and customers, finances and markets.

Complex stuff, but worthwhile. Successful BI brings greater profitability, the true indicator of business success. And success is never an accident; companies achieve it when they do the following:

- Make better decisions with greater speed and confidence.
- Streamline operations.
- Shorten their product development cycles.
- Maximize value from existing product lines and anticipate new opportunities.
- Create better, more focused marketing as well as improved relationships with customers and suppliers alike.

Organizations must understand and address these 10 critical challenges for BI success. BI projects fail because of:

1. Failure to recognize BI projects as cross-organizational business initiatives, and to understand that as such they differ from typical standalone solutions.
2. Unengaged business sponsors (or sponsors who enjoy little or no authority in the enterprise).
3. Unavailable or unwilling business representatives.
4. Lack of skilled and available staff, or sub-optimal staff utilization.
5. No software release concept (no iterative development method).
6. No work breakdown structure (no methodology).
7. No business analysis or standardization activities.
8. No appreciation of the impact of dirty data on business profitability.
9. No understanding of the necessity for and the use of meta-data.
10. Too much reliance on disparate methods and tools (the dreaded silver bullet syndrome).

In this white paper, we examine each of these challenges.

1. Cross-Organizational Collaboration

Traditionally, any business initiative, including a decision-support project, was focused on a specific goal that was limited to a set of products or an area of the business. Due to this narrow focus, organizations were unable to analyze the project's impact on business operations as a whole. As organizations became more customer-focused, these initiatives began to integrate customer information with product information.

It is critical to realize that customers and markets, not manufacturing plants and product managers, must drive the business. It is also optimal to correct any customer problems before the customer realizes the problem existed. Enterprises have a better chance to achieve high customer loyalty if customers can pay when their problem is solved — not when the product is shipped. Initially, the integration occurred in regional or departmental databases, with no cross-regional collaboration.

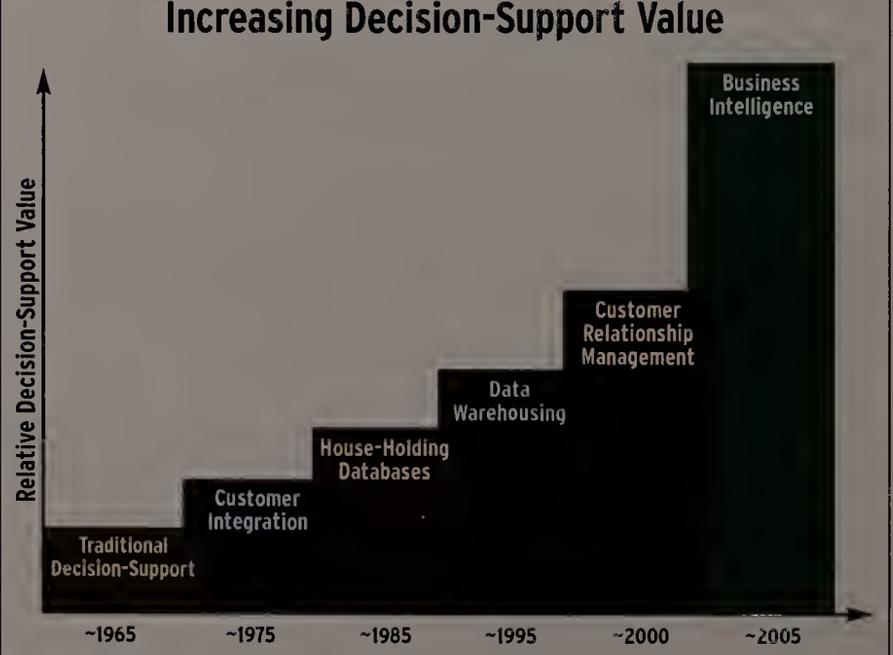
Customers and markets, not manufacturing plants and product managers, must drive the business.

Enterprise data warehouses were the next step in the evolution toward cross-organizational integration of information for decision-support purposes such as sales reporting, key performance indicators (KPIs) and trends analysis. Customer relationship management (CRM) followed, bringing the promise of increased sales and profitability through personalization and customization.

BI is the next step in achieving the holistic cross-organizational view (Figure 1). It has the potential to deliver enormous payback, but demands unprecedented collaboration. Where BI is concerned, collaboration is not limited to departments within the organization; it requires integration of knowledge about customers, competition, market conditions, vendors, partners, products and employees at all levels.

To succeed at BI, an enterprise must nurture a cross-organizational collaborative culture in which everyone grasps and works toward the strategic vision.

Figure 1



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2. Business Sponsors

Strong business sponsors truly believe in the value of the BI project. They champion it by removing political roadblocks. Without a supportive and committed business sponsor, a BI project struggles for support within an organization — and usually fails.

Business sponsors establish proper objectives for the BI application, ensuring that they support the strategic vision. Sponsors also approve the business-case assessment and help set the project scope. If the scope is too large, sponsors prioritize the deliverables.

Specifically for BI projects, business sponsors should also launch a data-quality campaign in affected departments. This task goes to business sponsors because it's business users who truly understand the data.

Finally, business sponsors should

run a project review session at assigned checkpoints to ensure that BI application functionality maps correctly to strategic business goals, and that its return on investment (ROI) can be objectively measured.

3. Dedicated Business Representation

More often than not, the primary focus of BI projects is technical rather than business-oriented. The reason for this shortcoming: most BI projects are run by IT project managers with minimal business knowledge. These managers tend not to involve business communities. Therefore, it's not surprising that most projects fail to deliver expected business benefits.

It's important to note that usually 20% of the key businesspeople use BI applications 80% of the time. Therefore, it's vital to identify key business and technical representatives at the beginning of a BI project — and to keep them motivated throughout the project. A BI project team should have involved stakeholders from the following areas:

Business executives are the visionaries with the most current organizational strategies. They should help make key project decisions and must be solicited for determining the project's direction at various stages.

Customers can help identify the final goals of the BI system. After all, their acceptance of products or service strategies is what matters most.

Key business partners provide a different view of the customer and should be solicited for information at the start and on an ongoing basis.

The Finance department is responsible for accounting and can provide great insight into an organization's efficiencies and improvement areas.

Marketing personnel should be involved during all phases of the project because typically, they are key users of BI applications.

Sales and Customer Support representatives have direct customer contact and provide customer perspective during a BI project. They must have representation on the team.

IT supports the operational systems and provides awareness about the backlog of BI requests from different groups. In addition to providing technical expertise, the IT staff in the BI project team must analyze and present BI-related requests.

It's vital to identify key business and technical reps at the beginning of a BI project — and keep them motivated throughout.

Operations managers and staff make tactical business decisions. They provide the link between strategic and operational information, making them important during some key phases of a BI project.

4. Availability of Skilled Team Members

BI projects differ significantly from others because at their outset, they tend to lack concrete, well-defined deliverables. In addition, the business and technical skills required to implement a BI application are quite different than other operational online transaction processing (OLTP) projects. For example, while operational projects normally focus on a certain area of the business, such as enterprise resource planning (ERP), CRM or supply chain management (SCM), a BI project integrates, analyzes and delivers information derived from almost every area of the business as a whole.

The required technical expertise varies as well; typically, for example, a database administrator's focus is efficient retrieval of data using OLTP systems. By contrast, where BI systems are concerned, it's vitally important to focus on data storage in addition to data retrieval.

A BI project team lacking BI application implementation experience will most likely fail to deliver desired results in the first iteration. Since most BI projects have aggressive timelines and short delivery cycles, an inexperienced and unskilled team is a risk that must be avoided.

Mandatory BI project skills include:

- BI business analysts who can perform cause-and-effect analysis to develop business process models for evaluating decision alternatives. These individuals should also be able to perform what-if analysis by following a proven BI methodology.
- A KPI expert experienced in creating balanced scorecards. These experts must be able to identify the KPIs that meet business needs, calculate and report them and monitor per-

formance. They also should iteratively re-evaluate KPI effectiveness and must integrate these KPIs into the balanced scorecard.

- Balanced scorecard experts to continuously develop and fine-tune scorecards. Measuring success in a dynamic business environment requires an effective toolset. With a balanced scorecard, an organization's vision and strategy can be translated into objectives, targets, metrics — and incentives to meet those objectives and targets.
- Data warehouse architects with experience developing BI-related logical and physical data models, including both star schemas and OLAP. Ideally, these people might also have experience with such technologies as statistical tools and data-mining algorithms.
- Cube developers and implementers with experience implementing BI-specific data models, OLAP servers and queries. These individuals must be able to develop and deploy complex and intelligent cubes to conduct multi-dimensional OLAP analysis for different users.
- Personalization experts experienced at developing Web-based generic BI applications that can not only meet the reporting needs of many users, but also provide a personalized view to each user.

5. BI Application Development Methodology

To succeed, BI projects must adhere to a plan with clearly defined methodologies, objectives and milestones. In this respect, they are hardly unique. However, unlike other undertakings, BI projects are not limited to a confined set of departmental requirements. Rather, their purpose is to provide cross-organizational applications. Therefore, BI methodologies and deliverables differ.

Unlike other undertakings, BI projects aren't limited to a set of departmental requirements.

Like any project, BI starts out by answering some basic questions, such as: What will be delivered? What are the benefits and expected ROI? What is the total cost? When will it be delivered? Who will do it? The answers collectively define the BI project as follows:

Project deliverables map goals to strategic business objectives. These deliverables should be measurable in business terms. For example, "In order to increase sales 20%, the sales data merged with pipeline data must be available to sales teams within three days of month's end."

Project scope aligns deliverables with BI application deployment phases and timelines. Unlike traditional OLTP applications, the number of transactions the system will perform cannot measure BI project scope. Transactions usually represent an organization's processes, which in turn represent functions. Since BI projects are data-intensive, not function-intensive, their scope must be measured by the data they will transform to the target BI databases, and

Figure 2

BI Project Planning Process

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how quickly this data can be available. This focus on data is necessary because almost 80% of the effort in a typical BI project is spent on data-related activities.

ROI for a BI project must be derivable from project deliverables. Project sponsors must measure the effectiveness of delivered BI applications after the completion of each phase to determine whether the project is delivering the promised ROI. If it isn't, improvements must be made.

6. Planning BI Projects

Due to the nature of the beast, BI projects tend to hit more unknowns than OLTP projects. Why? OLTP projects implement the processes of an organization, which in turn represent the functions. By contrast, BI projects are supposed to provide data, which will be transformed into information, which in turn is transformed into action. Therefore, BI project planning is not a one-time activity, but rather an iterative process in which resources, timelines, scope, deliverables and plans are continuously adjusted (Figure 2).

Although it's an iterative process, the initial project plan must be created with as much detail as possible (Figure 3). BI project planning activities include:

Determining project requirements. As part of this activity, existing high-level data, functionality and infrastructure requirements must be reviewed and revised to include more detail and remove ambiguity.

Determining the condition of source files and databases. Before completing the project plan, operational data stores must be reviewed to account for any issues that may surface during the data-analysis phase.

Determining or revising cost estimates. During this activity, the organization performs detailed analysis to determine purchase and maintenance cost estimates for hardware, software, network equipment, business analysts, IT staff members, implementation, training and consultants.

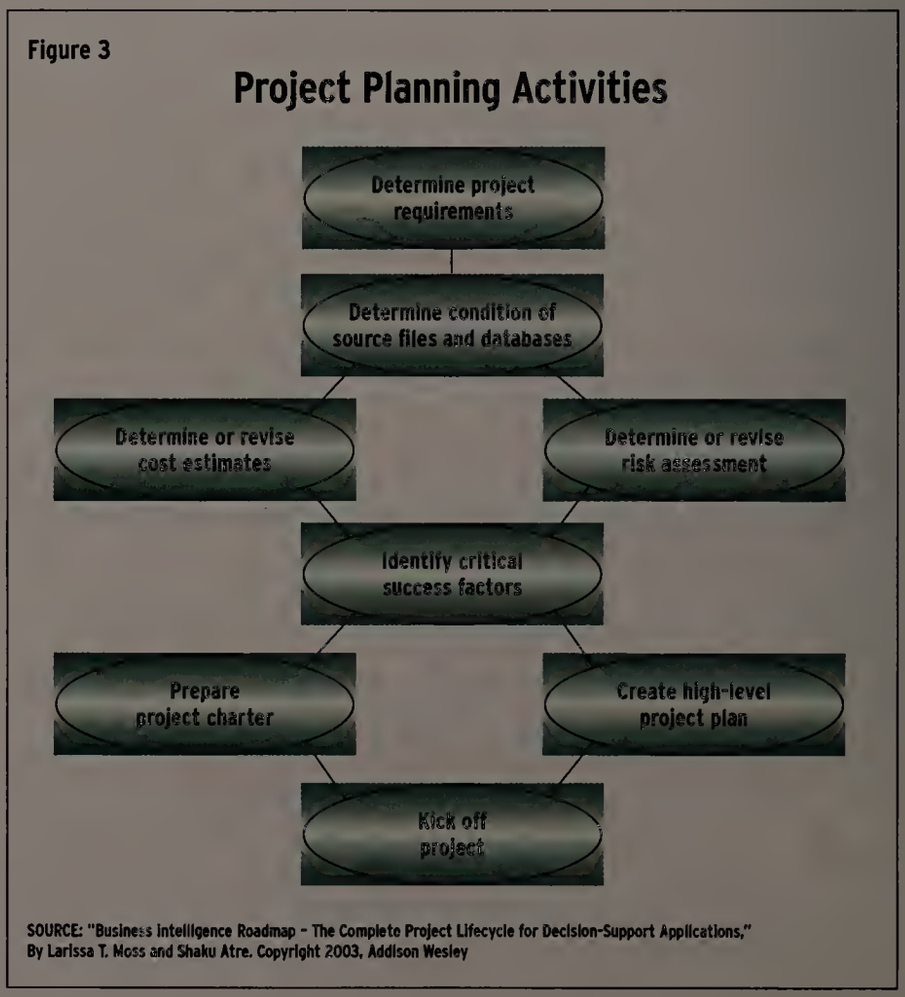
Determining or revising risk assessment. Enterprises must perform a detailed risk assessment in order to accurately determine and rank BI project risks (based on severity and the likelihood of their occurrence).

Identifying critical success factors. Here an organization determines what conditions must exist in order for the project to succeed. Factors include supportive business sponsors, realistic time frames and the availability of resources.

Preparing the project charter. This is a detailed memorandum of understanding that should be prepared by the project team and approved by the business sponsor and key business representatives.

Creating a high-level project plan. These are detailed breakouts of tasks, resources, time lines, task dependencies and resource dependencies

Figure 3



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mapped on a calendar.

Kicking off the project. On completion of the plan, the project is kicked off in an orientation session at which all team members, business representatives and the BI sponsor are present.

7. Business Analysis and Data Standardization

By now it's clear that BI projects are data-intensive and that "data out" is as important as "data in." It's crucial that the source data be scrutinized. The age-old saying, "Garbage in, garbage out," still holds true.

In most BI projects, business analysis issues are related to source data, which is scattered around the organization in disparate data stores and in a variety of formats. Some of the issues include:

Identifying information needs. Most business analysts have challenges when it comes to identifying business issues related to BI application objectives. They must evaluate how addressing these issues can help in obtaining answers to business questions such as, "Why is there a decrease in sales revenue in the fourth quarter on the West Coast?" Once the issues are identified, business analysts can easily determine related data requirements, and these requirements can in turn help identify data sources for the required information.

Data merge and standardization. The biggest challenge faced by every BI project is its team's ability to understand the scope, effort and importance of making the required data available for knowledge workers. That data consists of fragments in disparate internal systems and must be merged into a common data warehouse — not a trivial task. Data requirements normally extend beyond internal sources, to private and external data. Therefore, data merge and standardization activities must be planned and started at the beginning of the BI project.

8. Impact of Dirty Data on Business Profitability

Inaccurate and inconsistent data costs enterprises millions. It's imperative to identify which data is important, then find out how clean it is. Any dirty data must be identified, and a data-cleansing plan must be developed and implemented.

Dirty data must be identified and a data-cleansing plan must then be developed and implemented.

The business objectives of any BI project should be tied to financial consequences such as lost revenue and reduced profit. The financial consequences are usually the result of a business problem related to inaccuracies in reports due to reliance on invalid, inaccurate or inconsistent data. However, most BI projects fail to tie financial consequences to dirty data through monetary expressions (such as losing $10 million in quarterly revenue due to the enterprise's inability to up-sell).

Even the best BI application will be worthless if driven by dirty data. Therefore, it is important for every BI project to employ knowledgeable business analysts who understand the meaning of source data and can ensure its quality.

Underestimating the data-cleansing process is one of the biggest reasons for BI failure. Inexperienced BI project managers often base their estimates on the number of technical data conversions required. Project managers also fail to take into account the overwhelming number of transformations required to enforce business data domain rules and business data integrity rules.

For some large organizations with many old file structures, the ratio of a particular data transformation effort can be expected to be as high as 85% effort in data cleansing and only 15% in enforcing technical data conversion rules. Therefore, even if estimates appear realistic at the project's outset, you must factor in data-cleansing efforts. Note that full-time involvement from the right business representatives is mandatory for data-cleansing activity.

9. Importance of Meta-Data

Clean data is worthless to knowledge workers if they do not understand its context. Valid business data, unless tied to its meaning, is still meaningless. Therefore, it is imperative for all BI applications to consciously create and manage the meaning of each data element. This data about data is known as meta-data, and its management is an essential activity in BI projects.

Meta-data describes an organiza-

tion in terms of its business activities and the business objects on which they're performed. It helps transform business data into information. It is imperative for every BI environment. For example, what is profit? Does every businessperson have the same understanding of profit? Is there only one calculation for profit? If there are different interpretations of profit, are all interpretations legitimate? If there are multiple legitimate versions of profit, then multiple data elements must be created, each with its own unique name, definition, content rules and relationships. All this information is meta-data.

Meta-data helps businesspeople navigate BI target databases and helps IT manage BI applications. There are two types of meta-data:

- Technical meta-data provides information about BI applications and databases, and assists IT staff in managing these applications.
- Business meta-data provides business users with information on data stored in BI applications and databases.

Both types are crucial to success and should be mapped to each other and stored in meta-data repositories.

10. The Silver Bullet Syndrome

There is neither a single technology nor a technique that will resolve all the challenges to reach the goal of a successful BI environment. That is to say, there is no silver bullet.

BI projects have an enormous scope and cover multiple environments and technologies. At a minimum, a BI environment comprises:

- A tool for extracting, transforming and loading data from disparate source systems into the BI target data warehouse.
- A data warehouse that stores historical and current business data, as well as an OLAP server that provides analytic services.
- Front-end BI applications that are used to provide querying, reporting and analytic functions to the organization's knowledge workers.

Valid business data, unless tied to its meaning, is still meaningless. BI applications must create and manage the meaning of each data element.

In most organizations, these BI components are implemented in different phases and by project teams. Each team implements the product that meets most of its functional requirements. More tools create greater complexity and increased interoperability issues, and require more administration involvement.

BI project teams must always consciously strive for the lowest possible number of tools. This will allow different BI activities to map to the same overall roadmap.

Conclusion: Maximizing ROI

BI applications, if implemented efficiently and properly, have tremendous payoff. They can help an enterprise increase its business agility, decrease operating costs and improve its customer loyalty and acquisition.

And in most cases, these improvements bring a host of tangible benefits (better customer satisfaction, increased revenue and profits, cost savings and higher market share). Bottom line: a successful BI project is a genuine, often dramatic, improvement to any organization.

Ah, but there's that word again: successful. As we've seen, many complex factors go into the successful BI project. By paying attention to the 10 critical challenges for BI success, your enterprise has a great chance to complete and deliver the features and benefits agreed upon at the beginning of the project. ❖

An internationally renowned expert in business intelligence, data warehousing and databases, Shaku Atre is president of Atre Group Inc. in Santa Cruz, California.

Previously, Atre was a partner with PriceWaterhouseCoopers and worked at IBM for 14 years. Atre's award-winning book on database management systems, "Data Base: Structured Techniques for Design, Performance and Management" (John Wiley and Sons, New York), has become a classic on the subject. Her most recent book is "Business Intelligence Roadmap - The Complete Project Lifecycle for Decision-Support Applications," by Larissa T. Moss and Shaku Atre (Addison-Wesley).

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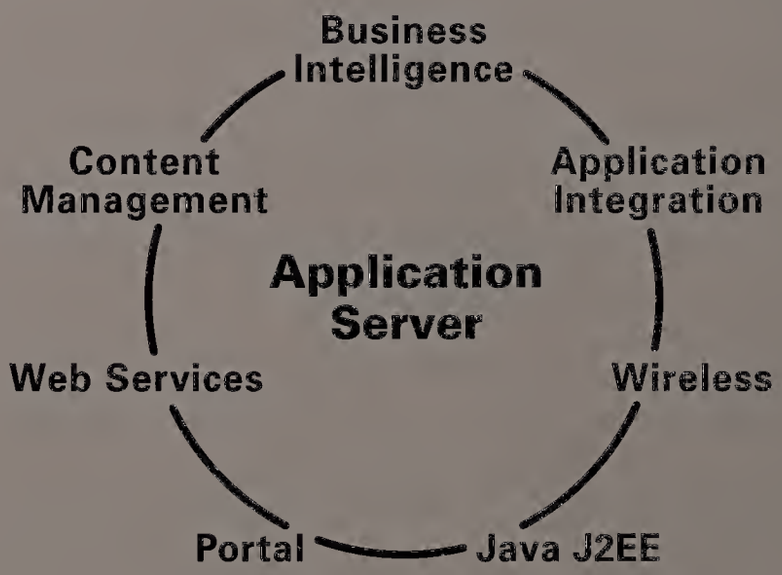

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their desktops on a regular basis to look for recurring problems or trends, and to measure agent service and sales performance. They can also assess IT operations based on customer feedback.

By using IT, HR management was able to revamp the agent review process, whittling a list of 65 questions down to 14 and shifting the focus of the review process from administration to coaching and learning. Continental has also restructured its training program for new hires to reflect the customer service issues that show up in the call center.

Creative application of IT has made it possible to automate and link a variety of customer service data, making it easier to provide current information about flight delays or fare changes.

Providing an online evaluation form makes it convenient for managers to score as they listen to recorded calls. They can even mark calls and e-mail them for review by other personnel.

That's pretty versatile and far reaching for a system that was originally conceived as just a security measure to monitor, capture and relay threatening calls within real-time parameters. In today's world, that kind of vision and those kinds of results mean that IT is hardly passé.

DAN GILLMOR

Take Another Look at Apple

EVERY ONCE in a while, corporate IT shops have to ask, "Is the Mac any more, or less, worthy for the enterprise?"

We learned some useful facts about Apple Computer's future last week at the company's annual conference for developers in San Francisco. At the top of the list: Apple isn't moving to the Intel architecture for its central processors, but it is beginning to shed a hardware albatross in a smart way.

For IT, the hardware story may prove to be the most interesting. Apple leapt into the 64-bit era when it announced a new line of computers based on IBM's PowerPC 970 microprocessors. The move was long overdue recognition that Motorola, which has been Apple's PowerPC supplier, has lost too much ground in power and price to the Intel architecture in recent years. Apple is still using Motorola chips on lower-end machines and probably will keep doing so for some time, but the alliance with IBM strikes me as Apple's future.

DAN GILLMOR is technology columnist at the *San Jose Mercury News*. Contact him at dgillmor@sjmercury.com.

There's no doubt that this hardware is a big step forward. It's not just a faster CPU, which Apple is branding the G5. The entire system offers an impressively advanced architecture that includes faster memory and an internal bus speed that moves the Mac ahead of the competition. Apple is also embracing Universal Serial Bus 2.0, somewhat surprisingly given its pushing of FireWire, but this is what the company has to do in today's world.

All that won't be enough to entice the enterprise for routine office applications. You're unlikely to see IT departments replacing their Windows desktop computers with the Power-Mac G5, due to ship in August. Although the prices are quite competitive with the fastest Intel-compatible machines, they're way more costly than the slower — but still amply fast — PCs running Windows or Linux for ordinary office work.

However, users of high-end Macs have genuine incentives to upgrade. That's especially true for the "creative professionals" Apple counts as a core market. These folks are sure to be pleased. Software developers are rewriting their applications to take advantage of the G5 (for example, Adobe is reworking Photoshop), but 32-bit applications should run without modification. In some ways, G5s may be attractive as replacements for some Unix workstations.

Apple didn't announce a rack server or notebook G5. Expect the server before the notebook; heat issues are sure to constrain the latter.

The software story is mixed. The next version of the Unix-based operating system — Mac OS X 10.3, code-named Panther — is being delayed three months or so. Too bad. It's slick, with plenty of usability enhancements, such as vastly better search, and it looks like it will work even more smoothly inside Windows-oriented enterprises.

But Microsoft's increasingly ambivalent attitude toward the Mac could become a problem. Microsoft is killing development of Internet Explorer for the Mac, noting (without irony) that Apple's developers have an unfair advantage in developing the Safari browser because they have better access to the underlying operating system. And given how closely intertwined the Windows version of Office is becoming with the operating system, it's likely that the next OS X version of Office will be the last.

Apple is making tentative moves toward replacing Office with its own suite of applications, such as the Keynote presentation software. But Microsoft's never-ending efforts to lock in users with hard-to-decipher file formats, complex macros and other tricks will remain a problem for Mac users, and thus for Apple as well. This transition will be tricky.

Bottom line for IT? Apple can still make a case in the enterprise, targeting creative types, some road warriors and some server applications, and it's clearly not running short on innovation.

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www.computerworld.com/columns

READERS' LETTERS

Revised Opinion

IN THE MAY 12 edition of *Computerworld*, I was quoted in the article "Wading Into IP Telephony" [QuickLink 38056] as saying, "Avaya's not as focused on data as Cisco is. . . . The Cisco user interface is cleaner." While this may have been our first impression at the time I was interviewed, over the past six months our network analysts have concluded that for voice-over-IP monitoring and management, the Avaya Cajun switches are the choice performers. Since then, we have installed over 75 Cajun switches throughout our facilities, with no regrets.

Thomas Dunkerley
IT communications manager,
The Seattle Times,
tdunkerley@seattletimes.com

Human Error

NEIL RASMUSSEN makes some good, practical points on facilities management ["Avoiding Data Center Blowups," QuickLink 38121]. Surprisingly, many of these involve human rather than technical factors (for example, the classic lack of coordination between construction and operations staffs). These problems often border on the absurd, though the outcomes are not always so charming. We have had maintenance staff who wedged open the service doors before they went home for the weekend, and locksmiths who put new locks on the wrong side of these same doors.

Rasmussen's observations about oversizing power and cooling capacity are equally apt. I once had a difficult discussion with an HVAC engineer who came to look at the new heat exchanger in a small server room. Using crude arithmetic examples, the engineer tried to explain that the air in the room had to recirculate several times a minute or cooling wouldn't be effective. I tried to explain that heat exchange is nonlinear and that it sounded like most of the energy of the 2-horsepower fan was in any case being converted into turbulence. It was clear that neither factor had occurred to him, though they proved easy to demonstrate. By simply reversing the pulleys so the fan would run slower, we saw the room temperature fall by 6 degrees Celsius. All this is a reminder to temper our natural tendency to focus attention on exotic hardware and fashionable methodologies before we have cultivated a rational grounding in how things actually work. It takes a little longer, but makes a lot less mess along the way.

Dan Razzell
Starfish Systems, Vancouver, British Columbia

False Security

GARTNER'S ADVICE on collecting metrics sounds good on the surface, but you can count only the attacks you can detect, and of those, you can guess their effectiveness or ineffectiveness based only on whether your security tools claim to have successfully blocked them ["IT Managers See Need for Risk Metrics," QuickLink 38973]. If the security tool knows how to detect a particular type of attack, then it probably knows how to block it as well, and therefore it should report 100% effectiveness. Bill Spernow, chief information security officer at the Georgia Student Finance Commission, said it best when he cautioned that these numbers can give a false sense of security.

Scott B. Hutchinson
Network administrator, Office of the Sheriff, Contra Costa County, Martinez, Calif.

COMPUTERWORLD welcomes comments from its readers. Letters will be edited for brevity and clarity. They should be addressed to Jamie Eckle, letters editor, Computerworld, PO Box 9171, 500 Old Connecticut Path, Framingham, Mass. 01701. Fax: (508) 879-4843. E-mail: letters@computerworld.com. Include an address and phone number for immediate verification.

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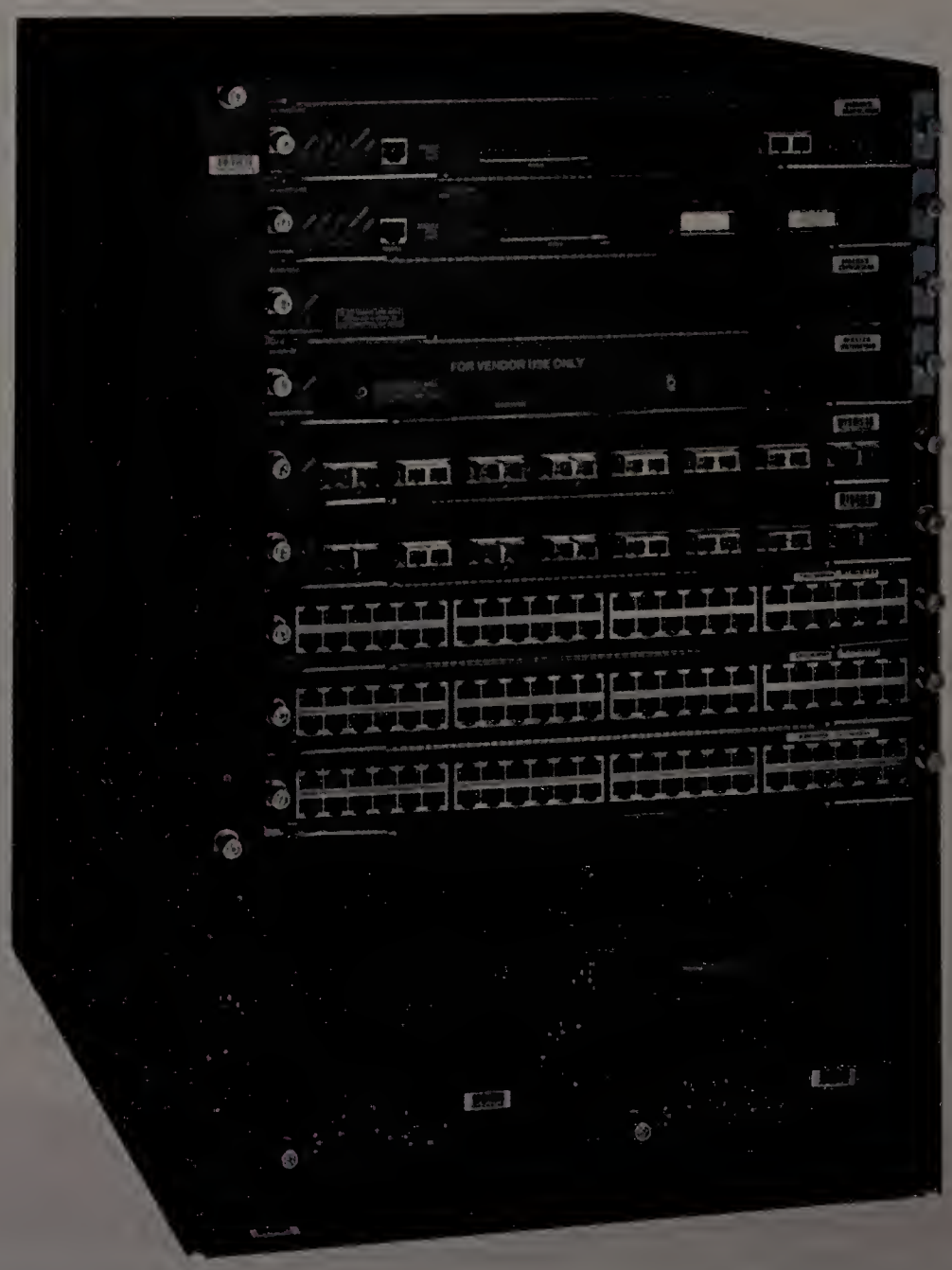

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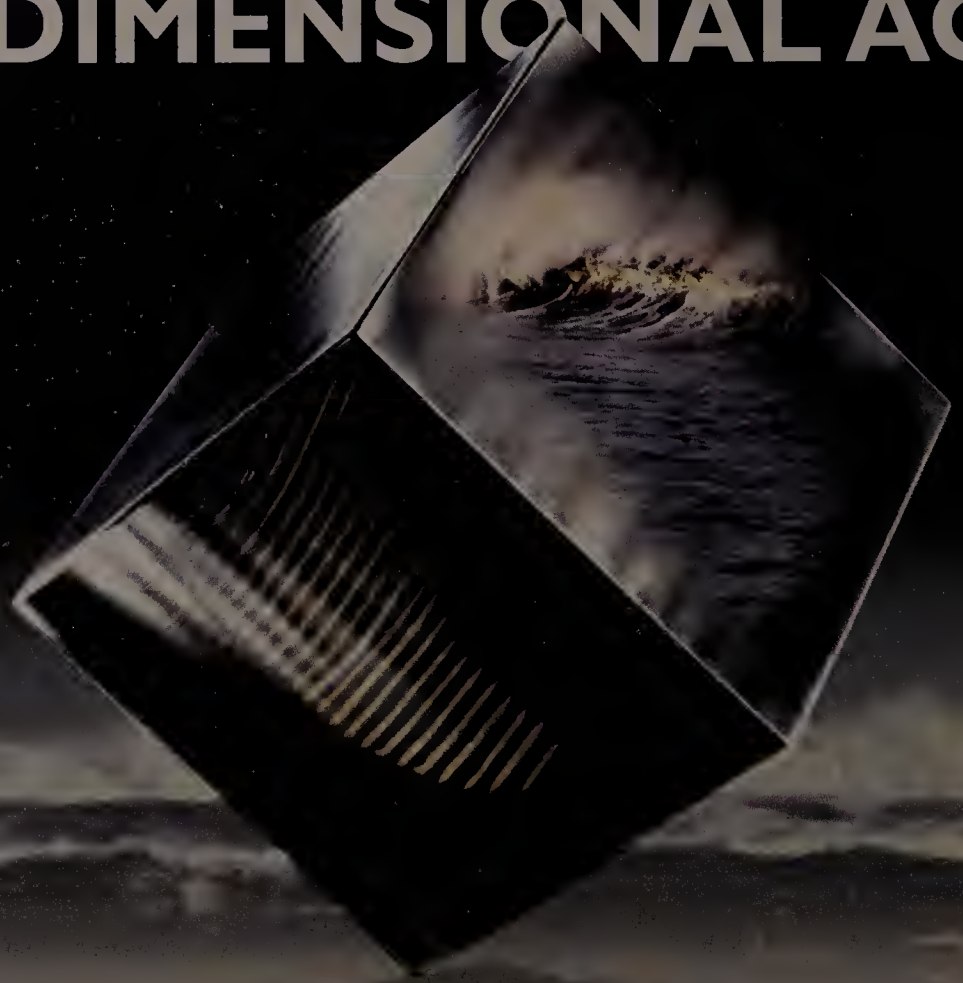

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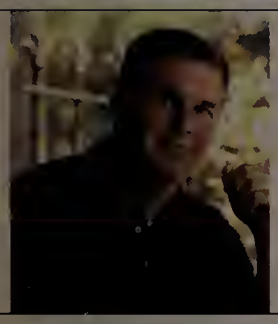


Q&A

Sharing the Info Wealth

One of the most important tasks facing the business-intelligence industry is disseminating information from analytics to the people who need it in a company, says Don Hatcher, SAS's vice president of technology strategy. **Page 30**

SECURITY MANAGER'S JOURNAL

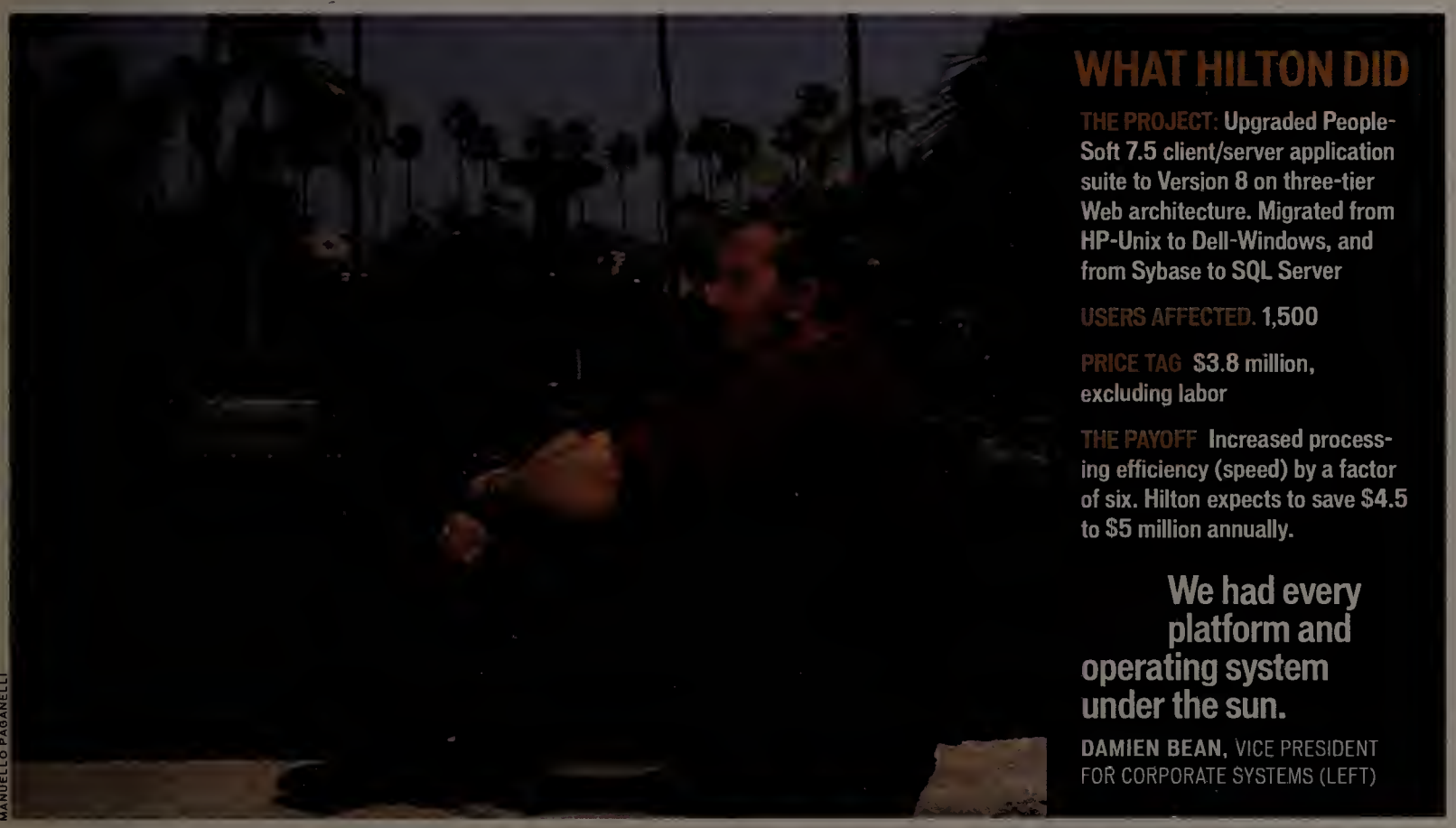
Corporation Caught In the Cross Hairs

A focused e-mail attack makes Vince Tuesday wonder if his company was singled out as a target. An investigation lays that fear to rest, but Vince still has nagging doubts about his company's security. **Page 32**

OPINION

Bracing for the New Privacy Laws

As privacy laws proliferate, fear of lawsuits and legal penalties will push the issue of compliance front and center, says Robert L. Mitchell. **Page 34**



MANUELLO PAGANELLI

WHAT HILTON DID

THE PROJECT: Upgraded PeopleSoft 7.5 client/server application suite to Version 8 on three-tier Web architecture. Migrated from HP-Unix to Dell-Windows, and from Sybase to SQL Server

USERS AFFECTED. 1,500

PRICE TAG $3.8 million, excluding labor

THE PAYOFF Increased processing efficiency (speed) by a factor of six. Hilton expects to save $4.5 to $5 million annually.

We had every platform and operating system under the sun.

DAMIEN BEAN, VICE PRESIDENT FOR CORPORATE SYSTEMS (LEFT)

HILTON CHECKS INTO NEW SUITE

Hilton's migration of its enterprise application suite from Unix client/server to a three-tier Web design on Windows pushed the limits of the technology. But it's finally paying off. By Gary H. Anthes

HILTON HOTELS CORP. is in the final stages of a massive system upgrade and conversion but is already saving millions of dollars in operating costs and software license fees. More strategically, the total changeover in its infrastructure — including server hardware, operating systems, database and application architecture — will greatly simplify maintenance and support and free up IT staff to concentrate on business process improvements, according to Damien Bean, vice president for corporate systems at Hilton.

The $4 billion, Beverly Hills, Calif.-based lodging company is converting its suite of PeopleSoft 7.5 client/server applications to PeopleSoft 8 on a three-tier, Web-based architecture.

FIELD REPORT

It's also scrapping Unix-based Hewlett-Packard Co. servers in favor of Windows 2000 Server boxes from Dell Computer Corp. and replacing its Sybase Inc. databases with SQL Server 2000 from Microsoft Corp.

Hilton merged with Promus Hotel Corp. in December 1999. Today the company owns or manages 300 Hilton hotels and 1,600 properties in the DoubleTree, Embassy Suites, Hampton Inns and Homewood Suites chains. "I was hired in April 2000 to pull the companies together," says Bean. "We had every platform and operating system under the sun."

Just before the merger, in response to the Y2k challenge, Hilton had replaced its local, independent payroll, human resources and financial systems with centralized PeopleSoft 7.5 client/server applications running on HP hardware and Sybase database server software. The resulting production environment was far from bulletproof, Bean says. "It had been a mad scramble because of the Y2k issue, and toward the end they were just slamming things together and hoping for the best," he says.

Human resources, payroll and financial applications at the former Promus hotels, which had been running on IBM AS/400 computers at a central data center in Memphis, were moved to the PeopleSoft-HP-Sybase system as well. But then Hilton made a key decision to put all hotels from both companies on Promus' custom-built, SQL Server-based property management system.

Bean says the two companies had too many servers, operating systems and databases even be-

fore they merged. After the merger, the mix of technologies was untenable, a situation not improved by the instability of the production environment. The time had come to streamline, simplify, and standardize in order to cut costs.

Hilton bumped HP in favor of Dell largely for cost reasons. Bean saw Dell servers as commodity boxes that could be had on the cheap and easily replaced with another vendor's Wintel machines anytime a better deal came along. As for databases, "we didn't see Sybase as a strategic platform for Hilton," Bean says. "I had visions of it being [acquired by Computer Associates], and I didn't want to be left behind."

Bean says Hilton had two long-term, industry-standard options: SQL Server 2000 on Windows and Oracle9i on Linux. "We clearly knew Oracle would work, and we got a very competitive bid from Oracle," he says. On the negative side, Hilton staff had extensive SQL Server experience but virtually no Oracle expertise.

Even more significant, Hilton was already installing the SQL Server-based property management system at every hotel, and the software license from Microsoft allowed client access to PeopleSoft for very little incremental cost. It was cheaper than Oracle "by orders of magnitude," Bean says.

But Bean had concerns about scalability. While Oracle could do the job, the suitability of SQL Server wasn't so clear, and no reference account for SQL Server even approaching the size of Hilton could be found. "Clearly we were going out on the edge of the performance envelope," he says.

Bean concluded that if he was going to live on the edge, so would his three key vendors — Dell, PeopleSoft and Microsoft. He met with senior executives at all three companies and stressed that the hotel giant would make a gold-plated reference account. "We said, 'If you've got someone willing to try this and take some risk, this is a project you can't afford to let fail,' " he says.

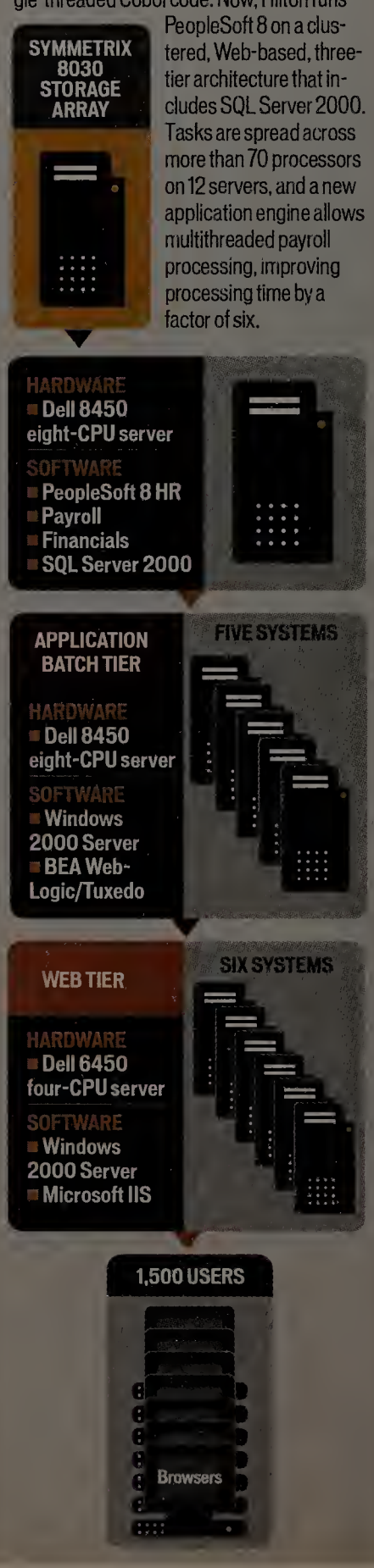
Scalding Performance

Hilton decided to test its Wintel system concept first on a travel agent commission system, an HP-Sybase application that had been coded using the PeopleTools application development environment. Although it was big — 50 to 60 tables and 100GB of data — it wasn't terribly complicated, nor was it so time-sensitive that it couldn't be down for a day or two if there were problems.

SQL Server proved up to the task.

HILTON'S PEOPLESOFT ARCHITECTURE

Hilton originally ran PeopleSoft 7.5 client/server applications on a Sybase database in a single, eight-CPU HP/9000 N class server, with all application and database processing performed on one server. Many payroll system components were processed using single-threaded Cobol code. Now, Hilton runs PeopleSoft 8 on a clustered, Web-based, three-tier architecture that includes SQL Server 2000. Tasks are spread across more than 70 processors on 12 servers, and a new application engine allows multithreaded payroll processing, improving processing time by a factor of six.



The PeopleSoft application servers and SQL Server database servers "ran like a scalded bat," performing six times faster than the previous system, Bean recalls. Gratified and emboldened, Hilton's IT shop moved on to migrate the PeopleSoft HR and payroll systems for 71,000 employees.

The project turned out to be far more complicated than expected, Bean says, because no one had ever set up such a large PeopleSoft HR system: It consisted of six four-way Web servers and five eight-way application servers. The job was further complicated by the processing autonomy and flexibility Hilton gives its hotels. "Hilton is the ultimate real-time environment," Bean says. "We don't do batch payrolls every Thursday night. If Hotel A wants to run its payroll Monday at 11 p.m., they do it."

Dell, Microsoft and PeopleSoft provided sustained on-site support, as did BEA Systems Inc., supplier of the WebLogic Web servers and Tuxedo application servers used in the project. "We were doing engineering that no one had ever done before," Bean says. "We did an enormous amount of brainstorming on the new setup and how to load-balance across it." And they made it work.

Payroll Problems

But Hilton's infinitely variable processing schedule made exhaustive preproduction testing impossible, and on the first day running the new system, payroll "went to hell in a handbasket," Bean recalls. One thing that apparently hadn't been tested was a condition that caused the cache used by an optimizer in SQL Server to balloon from its normal 10KB of RAM to 1.3GB. "At that point, all the database CPUs spun up to 100% [utilization], and the only way to get it back under control was to push the button and turn it off," Bean says.

Payroll is Hilton's No. 1 priority for disaster recovery, according to Bean. "Microsoft had six people on-site the next morning [Tuesday], plus a team in Redmond. They had three bug fixes by that Sunday night, which is phenomenal," he says.

Hilton's employees got paid, but only after round-the-clock efforts by the company's payroll staff. It took three weeks to completely catch up, Bean says.

Hilton is now in the final phase of its IT architecture makeover: converting its PeopleSoft financial applications to the three-tier Dell-SQL Server system. Bean expects to have that in production by August.

In the meantime, stress testing will be in the spotlight. The bug in payroll popped up when an online process collided with some batch code running at the same time, and Hilton has modified its approach to testing as a result. "HR is a very batch-oriented system, and our focus was on those things that were commonly run," says Roxanne Cheong, Hilton's manager of database administration. "But with the financial systems, we are throwing in ad hoc things, online transactions during the stress tests."

"We should have done a bit better on the stress testing, which is why we are spending an awful lot more time on it now," says Jane Melville, project manager and director of corporate systems. "It takes a lot of expertise to get each layer correct" in a three-tier architecture, she adds.

Melville says her team has spent six weeks writing scripts — using LoadRunner, a testing tool from Mercury Interactive Corp. — to do stress testing for the financial applications.

The tests will run at a Dell laboratory in Austin, where the vendor has set up a mock production environment in which it can simultaneously stress-test its own hardware, Hilton's PeopleSoft applications and SQL Server. All four companies have people on site.

When testing is complete, the entire system will be shipped to Hilton's Memphis data center. "I'm trying to fundamentally offload and mitigate as many risks as possible," Bean says.

Saving Millions

All the migrations will save $4.5 million to $5 million out of Hilton's $150 million IT budget, Bean says. The total cost, not counting internal labor, will come in at about $3.8 million, he says.

Robert La Forgia, a senior vice president and Hilton's controller, says the upgrades will benefit Hilton customers by making it easier for the IT staffers to adapt systems that touch them — such as reservations and billing — to customers' changing needs.

As for internal customers, the new architecture has already so streamlined processing that La Forgia is now able to close the books in six days instead of 10. "We have decreased processing time considerably," he says. "We have a lot less blood, sweat and tears and a lot less overtime."

MORE HILTON

Hilton will be a guinea pig for a new clustering technology from Dell:
QuickLink 39246

Timeline: A chronology of Hilton's data center upgrade project:
QuickLink 39097
www.computerworld.com

> **9:32 am.** Martha Watson counts over 1,200 name brands in order to justify the word "more" to the legal department.

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EMERGING TECHNOLOGIES

Preventive Medicine

Outlook: As IPS technologies mature, users say the benefits of proactively blocking attacks outweigh the risks of false positives. By Lauren Gibbons Paul

THE UNIVERSITY OF DAYTON'S network used to go down all the time. Students introduced viruses from their laptops, and university servers were the targets of an unrelenting barrage of worms like Nimda and Code Red.

"At one point, the network was going down on almost a daily basis," says Tom Danford, CIO at the Ohio institution. Last October, Danford turned to a new type of security product: an intrusion-prevention system (IPS). The university bought two UnityOne-2000s from TippingPoint Technologies Inc. in Austin. The appliances monitor network traffic for anomalies such as buffer overflow attacks and automatically drop packets associated with those events, essentially cutting off attacks before they can start.

With a list price of $99,995 each, the TippingPoint devices aren't cheap (although Danford received a substantial academic discount). And the technology — which has been on the market for a little over a year — is unproven in large-scale corporate networks. But Danford was ready to try anything. "We have to have some level of openness on our network. We can't lock it down like a bank could," he says.

In January, two weeks after Danford set up the appliance, the SQL Slammer worm hit. "We didn't skip a beat. We had a lot of exposed servers," he says. Overall, the university receives over 3,000 attack attempts every week. So far, he says, they've all been filtered out.

Many companies face similar challenges. The number of system vulnerabilities and cyberattacks are skyrocketing, according to the CERT Coordination Center at Carnegie Mellon University in Pittsburgh, which logged 52,658 malicious incidents in the first quarter alone. And the propagation speed of attacks has gone up dramatically, says Neal Hartsell, vice president of product marketing at TippingPoint. For example, the Nimda worm took a day or two to infect thousands of hosts worldwide in 2001. In January, the SQL Slammer worm compromised nearly 100,000 machines in just 30 minutes.

IPS PROS AND CONS

↑ illegitimate requests on a network or server.

↑ or learned behavior patterns as well as signatures to detect and block both known and unknown attacks.

↑ to test security patches and fixes before deploying them.

↓ false positives that block legitimate traffic.

↓ Even host-based devices are still unproven in large-scale deployments.

IPSs work by proactively blocking illegitimate network traffic and server requests, including both known and unknown threats. They immediately block network traffic or server requests flagged as malicious by monitoring deviations from normal system behavior or by following a series of rules. By contrast, intrusion-detection systems (IDS) recognize only known attack patterns. They flag network intrusions after the fact, issuing alerts or pouring the data into logs for later review by a systems administrator.

To Richard Stiennon, an analyst at Gartner Inc., the advantages of an IPS over an IDS are clear. "If you owned a jewelry store, would you rather add a deadbolt to the front door or add another security camera?" he says.

As with IDSs, vendors offer both host- and network-based IPSs. Host-based IPSs (HIPS) first appeared more than two years ago and are just beginning to gain mainstream acceptance. Network Associates Inc. says more than 1,000 companies use its Entercept HIPS product. The systems work by installing a software agent on each server and then managing the agents from a central console.

Network-based IPSs (NIPS), available from companies like TippingPoint, are relatively new. These "inline" systems sit on the network and inspect packets for anomalies. But adoption has been slow to date because potential buyers are unsure how a NIPS fits into the overall security picture, according to Stiennon.

Both types of IPSs yield other benefits as well. For example, network administrators can deploy software patches on a scheduled basis rather than rush them out as emergency fixes. With an IPS in place, "companies . . . can be assured they are maintaining security until they can deploy the patch," says Eric Ogren, an analyst at The Yankee Group in Boston.

IPSs may also deter attackers from launching a major attack on a network. Many attackers do test runs prior to attacking a system. If a threat is deflected, that may dissuade an attacker from a broader attack. "We've seen the system deter attacks. That's a cool thing," says Bryan Turbow, founder and president of Myrient Inc., a managed services provider in Aliso Viejo, Calif. Myrient uses Captus IPS, a NIPS system from Woodland, Calif.-based Captus Networks Corp.

NIPSs and HIPSs aren't mutually exclusive. Ideally, both types of IPSs should be part of a layered information-security architecture that also includes firewalls, vulnerability assessment and remediation alongside other types of protection, say analysts.

But users are wary of buying a product that might generate false positives, a major complaint about IDSs. The consequences of a false positive are more dire with an IPS, since it could block legitimate business traffic rather than just generate alerts or reports. Some vendors claim that their products

■ PRODUCTS

IPS Emerges From Mergers

Until recently, start-ups and independent vendors dominated in the IPS market. But the niche has recently caught the attention of large vendors of network security products, leading to an acquisition spree. That's good news for corporate IT, since it means scalability and support are likely to get better.

IPS products fall into host- and network-based categories, but at least one vendor has an offering in both camps. Network Associates in Santa Clara, Calif., now owns a HIPS product, Entercept, as a result of its April acquisition of Entercept Security Technologies Inc. And in May it acquired Intru-

TippingPoint's $99,995 UnityOne-2000 NIPS protects LAN segments with traffic up to 2Gbit/sec.

Vert Networks Inc. and its IntruShield family of NIPS products.

Cisco has gotten involved as well, acquiring Waltham, Mass.-based HIPS vendor Okena in April and rechristening its StormWatch product Cisco Security Agent.

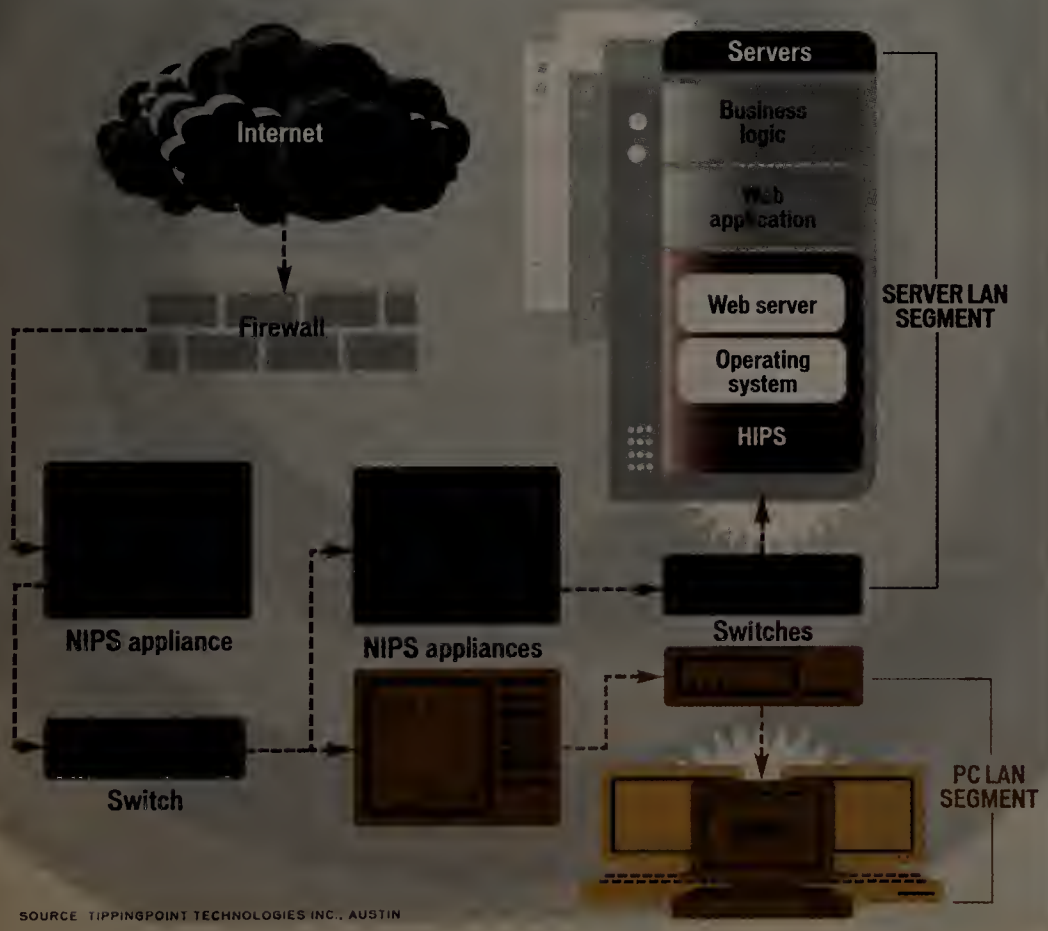
Primary Response, from Sana Security Inc. in San Mateo, Calif., and STAT Neutralizer, from Melbourne, Fla.-based Harris Corp., round out the major HIPS products.

Pricing varies, but Entercept starts at $1,295 per server and $4,995 for the console.

The first NIPS products appeared in early 2002 but have yet to catch on with buyers. TippingPoint claims over 30 customers to date. Firewall vendor NetScreen Technologies Inc., which bought OneSecure Inc. last year, now sells NetScreen-IDP. Other players include Captus Networks, which offers the IPS 4000 series. Prices for NIPS appliances start at about $40,000 and go as high as $100,000 or more.

Adding an Intrusion-Prevention Security Layer

As with IDSs, IPS designs can include both host- and network-based components. Unlike IDSs, however, IPSs apply rules or detect unusual patterns of behavior in order to block possible attacks, not just log them. While NIPS appliances monitor network activity on the wire, protecting entire network segments, HIPS devices protect applications residing on individual servers.



SOURCE TIPPINGPOINT TECHNOLOGIES INC., AUSTIN

are less likely to have false positives because their filtering techniques are more sophisticated than those of IDSs.

But not all users agree. "You still do have false positives," says Vivek Kundra, director of infrastructure technologies for the Arlington County, Va., government. In October, he spent $30,000 to install Entercept on 30 critical servers. "We have spent a lot of time in the lab to make sure we're not shutting down government services to our constituents," he says.

There is nothing inherent in IPS technology that makes it more accurate than IDS, adds Jonas Hellgren, vice president of product management at Guardent Inc., a security services provider in Waltham, Mass., that offers IPS management.

Cisco Systems Inc., citing the false-positive issue, is sitting out the NIPS business for now, despite its recent acquisition of HIPS vendor Okena Inc. "Once we fix the false-positive problem, we can go on to being more proactive," says Tom Turner, director of marketing for the newly renamed Cisco Security Agent HIPS product.

Good Enough

IPS technology isn't yet mature, says Stiennon. And ultimately, IPS, IDS and other security functions will merge into firewalls, which will become general-purpose security appliances. But he doesn't think IT should wait, because IPSs are the only way to prevent attacks — both known and unknown — before they occur. "This is good technology that works," Stiennon says.

Kundra says intrusion prevention should be part of every IT manager's security portfolio. "There is still a lot of human intervention needed to define the types of behavior that are automatically excluded," he says. "You have to create, test and manage those rules." Nonetheless, he says, it's irresponsible not to invest in an IPS today. A few years ago, many IT managers didn't believe antivirus products would work, he says. Yet they protect against viruses that could bring down an enterprise. "Why wait for an organized cyberattack?" Kundra says.

Yankee Group's Ogren agrees. "This technology may not be mature, but there's no value in waiting. It is the only chance an organization has today against Day Zero attacks. It will get easier and scale better as time goes on. But it's ready for prime time right now."

Paul is a freelance writer in Newton, Mass. You can reach her at laurenpaul@attbi.com.

Defining Acceptable Behavior

TECH CHECK

All IPSs can protect against known attacks by using signatures, which define the specific pattern associated with a worm like Slammer or Fizzer. But an IPS's real strength lies in its ability to protect against threats for which no signature exists.

NIPSs inspect network traffic for compliance with a set of rules for acceptable and unacceptable behavior as defined by a security expert. By contrast, HIPSs, which reside on a server, take two different approaches to accomplish this task.

Cisco Security Agent and Network Associates' Entercept are examples of HIPS products that use a rules-based approach. A security expert describes behavior he considers normal and acceptable for the server as well as a list of outright unacceptable behavior, and the system interprets and blocks activity based on those rules.

"The downside is, the burden of managing that description rests with the customer," says Yankee Group analyst Eric Ogren. And since security is a moving target, those rules must be updated regularly.

By contrast, Sana Security Inc. in San Mateo, Calif., uses a behavior-based approach. After being placed on a server, its Primary Response system uses artificial-intelligencelike capabilities to "learn" what is normal behavior for that server. "By looking at the sequence of system calls, it builds a profile of what is being run through the server path," says Steve Hofmeyr, chief scientist at Sana.

But that isn't foolproof, either. "What if an attack happens while the product is in learning mode?" asks Jim Hurley, an analyst at Aberdeen Group Inc. in Boston. "And there's no way of knowing what is normal under all conditions," potentially leading to legitimate requests being blocked. Hurley calls himself a skeptic when it comes to intrusion prevention, though he concedes that "some of this has great promise."

– Lauren Gibbons Paul

Sharing the Info Wealth

Distributing information from analytics throughout a company is the BI industry's greatest challenge, says SAS Institute's Don Hatcher.

Q&A **Don Hatcher** *leads a team that shapes the strategic direction of SAS Institute Inc.'s products and technologies. Cary N.C.-based SAS's current initiatives focus in part on distributing analytics throughout its customers' organizations, rather than limiting access to the tools to a few highly trained individuals, said Hatcher in an interview with* Computerworld's *Tommy Peterson. He also said the biggest barriers to a business-intelligence (BI) implementation don't always involve technology.*

What is the thing your customers are asking for most often? If I had to give you one thing, I think it is enabling a greater percentage of the enterprise to leverage our analytics. It's dissemination. There's this concept that we have, which is the information supply chain. It started by just getting access to data — that's where all the vendors were focused. Then we all were focused on storing it and being able to analyze it. And then we were focused on having some tools so you could analyze it differently. The big focus nowadays for SAS is, How do we get this breadth of information out to the wider audience? Because we believe that 80% of a customer's enterprise needs are business intelligence today. We've had customers tell us that [they] can't find enough business analysts. We need to empower domain experts and information consumers to do some things themselves. That's what you [will] see us delivering in [Version] 9.1 when it comes out — a breadth of interfaces so that 80% of an enterprise can use business intelligence, instead of a very small percentage of an enterprise.

DON HATCHER

Age: 37

Title: Vice president of technology strategy, SAS Institute

Accomplishments: Before joining SAS in January 2000, Hatcher was CIO at the North Carolina Department of Commerce, where his group developed an application portfolio to support the process of recruiting businesses to the state. Prior to that, he was the CIO at the North Carolina Department of Agriculture.

How tough was it to adjust your technology to do that? Actually, we didn't have to adjust the technology; we just had to add delivery mechanisms on top of it. Our analytics still play a huge role within enterprises. We just needed to enable domain experts and information consumers to be able to leverage them. We've spent two or three years working on this project. We hired 32 new usability experts writing the front ends. We've got another 250 developers sitting there writing the BI back end. We spent a lot of time talking to our customers to understand how this dissemination needed to happen.

Are you eliminating the hierarchy of people with doctoral degrees in statistics or some other math field so you can present the information to the people who need to know it? You need the Ph.D.s to create the initial model. What we're not doing is dumbing down the analytics. We're just ensuring that when they get used, that people who know how to use them are creating a safe environment for the rest of the knowledge base. There's a lot of folks out there dumbing down analytics and black-boxing stuff. That's very dangerous, because models have to be retrained to notice the subtleties in the data.

What does it mean to have to retrain models? If you build the model, it's just a bunch of nodes hooked together that don't particularly know anything yet, and you need to run data through them, which creates, say, a decision tree, which is an example of one data mining model. It comes up with a decision tree that says, "When boys between 25 and 30 buy gym shoes, try to sell them gym socks also. But for a guy who's 45 to 50 who buys gym shorts, you don't necessarily want to sell him gym socks." You've got to train the model and then you leverage the model. But the model needs to be retrained from time to time because the information in the data changes. You make some adjustments in your model based on this new information to keep it fresh or even make it better at times.

DON HATCHER

Does that mean that analytics is a technology that isn't going to be commoditized anytime soon? Actually, that's exactly what I think we're doing. We're enabling an enterprise to take advantage of it but allowing them to do it in a controlled manner. But the models have to be kept fresh. To some banks, a half-percent increase in something represents millions of dollars. It's those kinds of things that you learn. You create a model that makes you better than you were, but then you gather new data, and you're able to tune the model even more.

The key thing we've been hearing is enabling the enterprise. People can be told they're empowered, but until you give them the information to truly let them be empowered, they won't believe you — and they'd be right.

What are the biggest problems companies face in trying to implement business intelligence and analytics? The big pain I really think is organizational change. . . . I'm not trying to downplay the challenges with implementing technology, but I would wager that most of the challenges around technology have to do with culture, have to do with people, have to do with process. I know there are customers where I could go in and sell them systems that would make them more effective as a company, but their culture won't allow it to be successful. Each silo of the business is rewarded for maximizing their silo.

If you want a technology, I'd say data quality is the biggest pain. Data quality can delay an implementation of a warehouse or even a data mart upwards of six months or more. As soon as you pull data that's not accurate through and into a warehouse and report on it and give it to somebody, their trust of the new system instantly dies. ◗

HATCHER ON CPM AND MORE

To read Don Hatcher's thoughts about corporate performance management and more, visit our Web site:

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Taming Data Complexity

Technology promises lucid displays of complicated information, regardless of its format. By Julia King

FUTURE WATCH

WHILE MUCH OF THE IT world focuses on building computers that are faster, smaller, cheaper and brainier, CEO Peter Lucas and his colleagues at Maya Design Inc. are obsessed with liberating the reams of data that computers contain, regardless of the format in which the data is stored.

To Lucas, computers are little more than "transducers" — necessary but "uninteresting prosthetic devices" for viewing data. "We can't see data, so we build computers, the same way we use goggles to see infrared," he says.

What would be much more valuable, Lucas believes, is a computing architecture for sharing data now stranded in relational databases, which he calls "information islands."

This is also the goal of the Semantic Web, which involves taking a relational database and "webbing it," according to Web inventor Tim Berners-Lee [see story, QuickLink 37596]. Where Maya's technology differs, Lucas says, is in "taking the much more radical step of freeing the data from any particular Web page or any particular machine."

Instead of describing data in a standard way or with metadata as the Semantic Web does, Maya's technology wraps the data in "containers," which reside in repositories in a peer-to-peer-based "information space" where people can meet and collaborate.

Pittsburgh-based Maya, a spin-off of Carnegie Mellon University, has come up with a container it calls a "u-form" that Lucas says makes it easy to transfer and manipulate data across different computer systems and applications. Higher-level semantics can be layered on top of the u-forms.

What guides the transfer of data from place to place is a set of "shepherds," or rules-based software agents developed by the data owners. For corporate applications, Lucas notes that u-forms could be encrypted and shepherded only to paying customers.

The same data could be viewed in different ways by different users. For example, a logistics manager could view on his PC a geographic map of warehouses and their contents in a specific region. Meanwhile, an inventory manager could draw on the same data and display on his handheld device a bar-chart representation of goods available for shipment from those warehouses.

In this example, multiple distributed views of the data could be linked in real time, permitting the data itself to become a medium for collaborative work. This is comparable to two users running Excel on the same data set, and every time one of them changes a number, the other's display is instantly updated.

Maya Design's Maya Viz software arm has technology it calls CoMotion, a set of

Maya Design CEO Peter Lucas foresees an "information commons."

tools for building different views of data that's stored in u-forms. The shepherds tell the u-forms where they can and can't go, based on the metadata, or data about the data, that's contained in the unique identifier portion of the u-form. Individual applications on a user's machine (built using CoMotion's visualization tools) dictate how data will be displayed.

The U.S. Transportation Command, or Transcom, at Scott Air Force Base in Illinois, is an early beta tester of CoMotion. Transcom is using the software to create different views of the vast amounts of data it must manipulate.

"Since 9/11, we've moved 700,000 people and over 2 million short tons of cargo. We have seven requirements databases that we pull from," each of which uses a different data schema and format, explains Lt. Col. Cody Smith, director of operations. Using Maya's technology, Transcom is able to display that data differently to its various customers.

"If we're dealing with ships, for example, we need to be displaying metric feet. Others need to look at tons or short tons of cargo," Smith says.

Common Understanding

"U-forms and the Semantic Web are aimed at solving different kinds of problems," says Jason Bloomberg, a senior analyst at ZapThink LLC in Waltham, Mass. "The Semantic Web is aimed more at business-to-business communications, where Company A and Company B need a common understanding of the terminology. A purchase order, for example, has to mean the same thing to both of them.

"The Semantic Web is about getting computers to understand content. U-forms are giving human beings more power in working with systems and content," he adds.

"The technical breakthrough we've made is separating the information from the visualization and manipulation," says Maya's Lucas. He foresees a world of peer-to-peer "civic computing" in which virtually all public information is stored in u-forms in a public "information commons" that's easily usable by anyone, anytime. Maya refers to this vision as the Civium (Latin for "of the people") Project.

"Instead of using peer-to-peer to steal music, let's liberate all accumulated public-domain data and create a vast information space to make it freely available," Lucas says.

Pittsburgh Green Map (*www.greenmap.org*), an interactive service for locating environmental, recreational and other "green" assets in western Pennsylvania, serves as a prototype of Lucas' vision. Developed in conjunction with 3 Rivers Connect, a Pittsburgh-based nonprofit environmental group, the service encompasses data from geographic information systems and other types of data from various public databases using different schemas and formats. This data has been converted to u-forms and is virtually located in an "information space," which is accessed via a "geobrowser" application developed by Maya.

Lucas says this technology is about as mature as the Web was in 1991. "It seems as good an assumption as any that it will follow a similar curve and take about as long," Lucas says. "That would mean that it will be actually useful to large numbers of people within a few years and will be on the cover of *Time* in about five years."

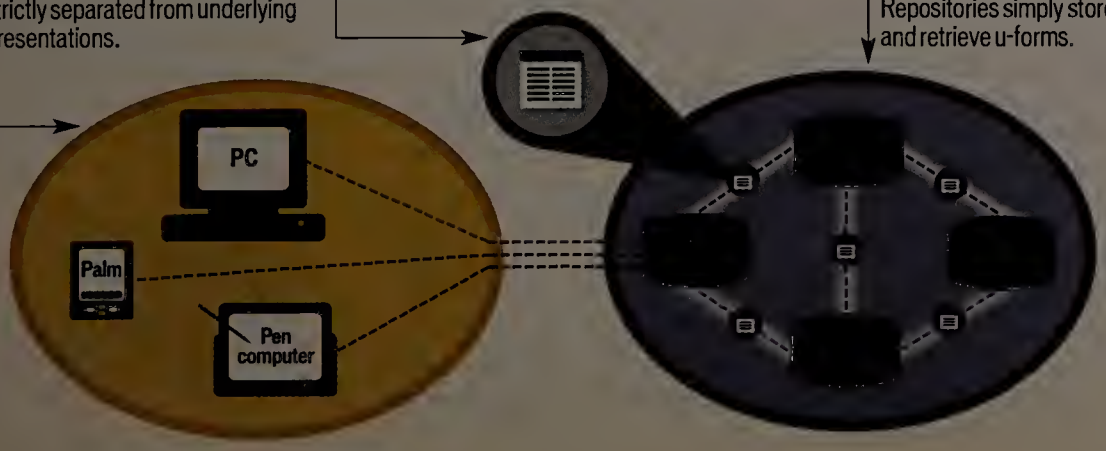
An 'Information Commons'

In a simplified version of Maya's vision, data of all types and formats is ensconced in u-forms, or standard information containers that can be easily moved among "schema-neutral" repositories in a peer-to-peer network. Data can be entered or accessed simultaneously as well as displayed differently by people using different devices.

DISPLAY DEVICES: Display devices "project" views of u-forms from repositories into a user's world. The form of the visualization is strictly separated from underlying representations.

U-FORMS: U-forms are standardized "containers" for transporting data of all kinds. Each u-form is simply a bundle of attribute value pairs tagged with a universally unique identifier.

REPOSITORIES: Radically new database technology implements a schema-neutral storage scheme. Repositories simply store and retrieve u-forms.



COLLABORATE TO SIMPLIFY

To see how Maya uses collaboration to conquer complexity, visit our Web site:

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Corporation Caught In the Cross Hairs

A focused e-mail attack sends our worried security manager scrambling to track down the source. By Vince Tuesday

SECURITY MANAGER'S JOURNAL

MY COMPANY deals with large electronic financial transactions on a regular basis, and I worry that this makes us the perfect target for a focused attack on our networks. This issue had been a theoretical one for me, however, until last week.

We do receive a great many attacks, but we aren't being singled out: Many other companies are being targeted at the same time. This leads me to conclude that either the attackers are taking the approach of targeting as many companies as possible with the same assaults and seeing which ones work, or there is so much noise in our monitoring logs that any targeted attacks are lost amid the chaos.

I have been reassured by how widespread the attacks have been. They show that we don't need to be totally secure — just more secure than most companies. This goal is a lot cheaper and easier to achieve than perfect security, but it's only safe if no one is targeting us. If we are the target of a focused attack, hackers will keep coming back with new approaches until they find one that works.

Fairy Tale Attack

We have outsourced our e-mail monitoring to New York-based Messagelabs Inc., which offers us a guarantee that no malicious code will get past its defenses. To back up that claim, it's admirably paranoid. The company's statistics show that about one in 270 of our e-mails contains a virus. Last week, we saw a surge of suspicious e-mails. Normally, this signals a big virus outbreak, but there was no mention of this on any of the antivirus Web sites. The malicious code Messagelabs stopped was simply characterized as "Possible new Trojan software detected."

Whoever was sending these e-mails was using a "Rumpelstiltskin attack." In this type of attack, which gets its name from the fairy tale about a queen who must turn her first-born child over to Rumpelstiltskin unless she can guess his name, the attacker tries to guess e-mail address names by taking a list of common names, combining them with possible first and last initials and sending them to an e-mail server.

I wasn't too worried about the general attack, but in the middle of all those attempts, the attacker had sprinkled in real e-mail addresses of staff members. It was clear that this attacker had a list of about 200 of our employees' e-mail account names. Perhaps someone internal had leaked the list?

> **This attacker had a list of about 200 of our employees' e-mail account names. Perhaps someone internal had leaked the list?**

The address list was clearly an old one, because many of the people on it had left the company. But if the attacker had bothered to get a list of real addresses for our company, even out-of-date ones, then surely this couldn't be a random probe. It had to be targeted directly at us.

Attacker Could Return

I wasn't worried by the first approach: Trojan horse executables in e-mails are a low risk thanks to our defenses. However, if an attacker was willing to put the effort into picking us out of all the possible targets and writing a new Trojan horse for his attack, then he was unlikely to give up once he realized his e-mail attack had failed. He would be back, but with Internet Relay Chat, Web or instant messaging distribution of his software. And if our desktops weren't as paranoid as Messagelabs, his attack just might work.

I asked Messagelabs to send my team and me a copy of the code so we could analyze it. Then I checked the newsgroups. Lots of people were being probed in this way, but only by spammers. Nobody was reporting attempts to sneak Trojan horse code in by this method.

I examined the executable. The code included a series of addresses, and when it was run, the program would connect to a Web site and pull down more code. I asked Messagelabs to investigate it further and then checked out the Web address.

I found it mentioned in a few postings, but these were advertising a porn dialer, a Trojan horse tool that alters your dial-up Internet connection to call a premium-rate phone number in a foreign country, secretly running up a huge phone bill.

Then Messagelabs contacted us to say that it had identified the software as something called TROJ_DIALER.B, and we were able to back down to a more relaxed state. It seems that this wasn't the first wave of a targeted attack but rather the act of a zealous spammer. Over the next few days, other companies reported the same probing.

So as it turns out, we weren't the only target; we were just "lucky" enough to be early on the list of what turned out to be a large number of targets.

But I'm still left with a nagging doubt. What if the only attacks we detect in all the noise are those that aren't targeted? If an attacker can't be bothered to aim at a target, it seems more likely that he will make less effort to hide his attacks. Could there be attacks that are targeted but stealthy enough to escape detection?

It is all a moot point, however, because to get the funds required to perfect security, I'll need evidence of the targeted attacks that I can't detect amid all the other events.

WHAT DO YOU THINK?

This week's journal is written by a real security manager, "Vince Tuesday," whose name and employer have been disguised for obvious reasons. Contact him at vince.tuesday@hushmail.com, or join the discussion in our forum: **QuickLink a1590**

To find a complete archive of our Security Manager's Journals, go online to **computerworld.com/secjournal**

SECURITY LOG

Security Bookshelf

Inside the Security Mind: Making the Tough Decisions, **by Kevin Day; Prentice Hall PTR, 2003**

Some authors take the view that security is a science and produce theories and models to try to explain the reasons behind what steps you should take to secure your company. Day doesn't waste time telling you *why* his approach works, he just preaches that it's the best one.

He defines a set of four virtues and eight rules of security. I didn't think they would be of much use, because they all seem obvious. For example, his rule of the threefold process states that security doesn't stop at implementation but must also cover monitoring and maintenance. But he has captured an elegant and consistent approach.

I haven't yet encountered a security situation that couldn't be resolved within the framework of these principles, but this book did teach me how to to use my experience properly.

– Vince Tuesday

Symantec Updates Framework Line

Symantec Corp. has issued updated versions of several products under its new Symantec Intrusion Protection security framework. The Cupertino, Calif.-based company refreshed its ManHunt network intrusion-detection system (IDS), now called Symantec Decoy Server, and the Intruder Alert host-based IDS and ManTrap "honeypot" products, now called Symantec Host IDS. Decoy Server now permits updates to sensors. Host IDS includes improved process management features that make it easier to harden applications against attacks. In addition to Sun Solaris 8 and 9, it now supports Microsoft Windows XP, 2000 and NT 4.0 .

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BRIEFS

XOsoft Upgrades Data Rewinder

New York-based XOsoft Inc. last week announced Version 3.5 of its Data Rewinder software for disaster recovery. The software allows storage administrators to "undo" application and database server corruption, according to XOsoft. The standard version of Data Rewinder is priced at $995, and the advanced edition costs $2,395.

Concord Releases EHealth Suite v5.6

Concord Communications Inc. in Marlboro, Mass., announced Version 5.6 of its eHealth Suite. The new release provides an embedded Oracle database, expanded foreign language support and faster deployment capabilities, the company said. Pricing starts at $100,000.

Mind Electric Java Platform Updated

The Mind Electric Inc. in Addison, Texas, last week announced Version 4.1 of its Java-based Web services runtime platform. New features include support for the SOAP 1.2 standard and a plug-in for Borland Software Corp.'s JBuilder tool. The standard, entry-level edition of the product is free for most commercial uses. The professional edition sells for $2,000 per CPU.

CommVault Beefs Up QiNetix Platform

CommVault Systems Inc. in Oceanport, N.J., announced that it's adding a component to its QiNetix Storage Management Platform. QiNetix QNet will assess an application's storage consumption by correlating how the application and changing data management policies affect the storage architecture. Pricing starts at $1,000 or $1,500 per backup server or production host, depending on the configuration.

ROBERT L. MITCHELL

Bracing for the New Privacy Laws

ONE WOULD THINK THAT, some eight years into the Internet age, enlightened self-interest would have motivated financial services and e-commerce vendors to put a higher value on maintaining the integrity of customer data. But companies' seeming inability to follow a consistent and reliable security model for the use of customer data, and the secretive approach taken to handling credit card security breaches, have helped create a consumer backlash — and a torrent of state and federal legislation.

ROBERT L. MITCHELL IS *Computerworld*'s technology evaluations editor. Contact him at robert_mitchell@computerworld.com.

The latest regulatory salvo, California Senate Bill 1386 (SB 1386), becomes law July 1, and more regulations are coming. The law requires companies to disclose any compromise of customer data to every affected consumer residing in California within 48 hours. And if you don't have up-to-date contact information for those consumers, you must post a notification on your Web site — the e-commerce equivalent of a scarlet letter.

Financial services companies worry that the negative publicity associated with disclosing data compromises could wreak havoc with consumer confidence in both e-commerce and the financial services industry. Consumer fears have been fueled by a string of high-profile data losses, including the compromise of some 8 million credit card numbers at card processor Data Processors International Inc. (DPI) last February. Most of the affected card associations' member banks didn't notify affected customers, despite the possibility that those numbers could be used in conjunction with so-called skip-trace database services online to gain enough information for identity theft.

E-commerce vendors, left in the dark about which card numbers were affected, had to make doubly sure they were checking card verification codes to protect themselves against chargebacks. Fear of negative publicity has kept the issue under wraps. Fear of legal penalties and lawsuits under new laws will now push the issue to the forefront as never before.

In the case of credit card number theft, card associations do provide security guidelines to merchants and banks, but not all organizations abide by them, says Julie Fergerson, chairman of the Merchant Risk Council in New York. "If DPI had done the [MasterCard] Site Data Protection program . . . the break-in never would have occurred," she says. Now legislatures have stepped in to enforce change.

That leaves IT professionals to struggle with the intricacies SB 1386 and similar federal legislation, called the Database Security Breach Notification Act, that Sen. Dianne Feinstein (D-Calif.) introduced last week. Bills pending in the Senate include the Social Security Number Misuse Prevention Act and the Privacy Act, which prohibit the display, sale or purchase of Social Security numbers and other personally identifiable information without the consumer's permission. Another bill, the Identify Theft Prevention Act, would prohibit the printing of full credit card numbers on receipts.

Ever aware of a sales opportunity, IT security vendors are madly waving red flags, hoping to cash in on the SB 1386 bonanza. Since this law exempts data that's encrypted from the disclosure rules, storage security vendors like Kasten Chase Applied Research Inc. are trumpeting the risks of network storage — and promoting PKI-based authentication and encryption at the storage device level for "at rest" data. But encrypting stored data isn't as easy as vendors make it sound. "It breaks a lot of indexing and backup schemes," says John Pescatore, an analyst at Gartner Inc.

Encryption also doesn't protect companies from insider attacks, which analysts say are at least as common as external threats. Liquid Machines Inc. in Lexington, Mass., extends encryption to data retrieved in queries. Policies set in Active Directory or another LDAP-compliant directory service control user access; results can be pasted into and viewed locally within supported applications such as Excel and Word. All usage is centrally monitored.

Another start-up, San Francisco-based Vontu Inc., offers a surveillance tool to help monitor access to sensitive data and "quarantine" it when issues arise, while Cupertino, Calif.-based StrongAuth Inc. offers compliance management and SB 1386 policy templates.

Such technologies can provide tactical support, but do you need them? Organizations with well-designed security policies and infrastructures will probably exceed the legal hurdles these rules set, analysts say, although compliance-monitoring tools may also be needed. And every organization handling sensitive consumer data should be using encryption. Implementing that is no picnic, and that's where vendors could be of help.

"The product vendors should focus on making it easier, not on trying to drum up fear, uncertainty and doubt with every new law that comes along," says Pescatore. Fortunately, vendors seem eager to rise to that challenge.

PRIVACY PLEASE

Here are just a few privacy regulations coming your way:
QuickLink a3340

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MANAGEMENT

Wanted: Security Tag Team
IT and engineering must join to secure dangerously vulnerable process networks, like at Du Pont, where Tom Good (left) has been leading the effort to protect such systems. **Page 38**

OPINION

SarbOx: Where IT and Finance Meet
CIOs need to jump in and figure out how to meet the looming requirements, says columnist Norbert J. Kubilus. **Page 44**

Managing the Temporary Players
A Web-based workforce management system lets Shell Oil improve the way it contracts for temporary help. **Page 42**

LYNNE SILER

ARNOLD S ED GROPP says the food retailer has prepared for UPC remediation for years.

ANOTHER DIGIT, ANOTHER DEADLINE

Shades of Y2k: U.S. retailers must update their systems to handle longer bar codes by Jan. 1, 2005.

BY KATHLEEN MELYMUKA

THE IT DEPARTMENT at Ahold Information Services in Greenville, S.C., has been working for years toward a deadline that's little known outside the retail world.

"We began designing data warehouses and new projects three, four, even five years ago with this in mind," says Ed Gropp, chief business and technology officer at the subsidiary of Ahold USA Inc., which operates U.S. supermarkets including the Stop & Shop and Giant Food chains. The company is "fairly well along," Gropp says, and he's confident Ahold will be ready.

But others in the retail industry are less prepared.

The dust has barely settled over Y2k, and there's another technology deadline approaching. Sunrise 2005 is the Uniform Code Council Inc.'s (UCC) mandate by which all U.S. manufacturers, distributors and retailers must be able to process new, longer product codes by 2005. Like Y2k, this is a business issue that involves database field formats, so responsibility falls heavily on IT. Like Y2k, it's a seemingly simple task that becomes more complex as you get more involved. And like Y2k, it leaves most retailers with no choice but to comply.

A Globalization Issue

Sunrise 2005 is essentially about numerical limits and globalization. In the 1990s, the Lawrenceville, N.J.-based UCC, which assigns the 12-digit universal product codes (UPC), determined that the numbers would eventually run out if more digits weren't added. The council notified retailers in 1997 that as of Jan. 1, 2005, it would introduce 13-digit UPCs and that they would have to be able to process them.

Sunrise 2005 is also a step toward global synchronization of retail data, which is expected to cut precious time and billions of dollars out of the supply chain. Current UPCs conflict with the eight- to 13-digit European Article Numbering (EAN) codes used throughout the rest of the world.

When foreign products are traded here, they must be relabeled so that U.S. 12-digit systems can read them, a time-consuming, expensive and error-prone effort. This relabeling will end in 2005.

A final twist: Sunrise 2005 *requires* that U.S. retailers be able to process 13 digits, but the UCC *recommends* that they process 14 digits. That's because 14-digit codes will be required for global synchronization as well as emerging supply chain tools such as reduced space symbology (RSS) and radio-frequency identification (RFID).

Although Sunrise 2005 also affects manufacturers, the bigger issue is for retailers, says Pam Stegeman, vice president of supply chain and technology at Grocery Manufacturers of America Inc. in Washington. Manufacturers won't need to change UPCs on existing products, and their back-end systems can already process 14-digit codes, which are often used on packing crates.

Many retailers with large volumes of international trade have been processing EAN code for years. "Wal-Mart is compliant and has been for several years," says Linda Dillman, CIO at Wal-Mart Stores Inc. "Because we have global systems, which means the same

WHAT IS IT?

Sunrise 2005

The Uniform Code Council *requires* that U.S. manufacturers, distributors and retailers be able to process 13-digit product codes by Jan. 1, 2005. (The current U.S. standard is 12 digits.) The UCC *recommends* that companies move to 14-digit codes.

What's in It for You?

According to the Global Commerce Initiative, an organization of retailers, manufacturers and the UCC and EAN International, Sunrise 2005 compliance can bring productivity improvements of 1% to 3% in supply chain costs, improving the bottom line by 10% to 15% per year. Specifically, the group says Sunrise 2005 will:

- **Eliminate** costs associated with correcting inaccurate information.
- **Automate** more tasks.
- **Serve** customers better through a wider variety of product sources.
- **Support** food-safety initiatives by better identification and tracing of tainted products.
- **Improve** trading partner relationships through better communication.
- **Reduce** product introduction time.

The sooner your company gets with the program, the sooner you begin to benefit. "There are benefits to getting done early," says Patrick Walsh, director of industry relations at the Food Manufacturing Institute. "You get an edge on the competition in product assortment and the ability to accelerate e-commerce business applications" using emerging tools such as RSS and RFID.

Christine Overby, a senior analyst at Forrester Research Inc., agrees. "Firms that get an early start sharing clean data with their trading partners will use money formerly wasted on inefficient processes to seed investments in new technology innovations like RFID," she says. "These first movers will distance themselves from the pack as these new investments further reduce inefficiencies while improving customer-service levels."

– Kathleen Melymuka

applications support all of our operations in other countries, we have supported a 13-, 14-digit product code since the mid-'90s."

The Navy Exchange Service Command is also ready. "We are an international retailer, so we already deal with 13-digit EAN codes, and our system will support 14," says Bill Finefield, retiring CIO at the Virginia Beach retailer for Navy bases and ships. Because many software vendors cater to international companies, all his systems were built to be compliant with international standards, he says.

Alan Garton, director of channel management for general merchandise at the UCC, says that a large percentage of traditional department stores and mass retailers are already compliant. "Big-box" retailers of appliances and electronics are a "mixed bag," he says. Some are ready; others still have work to do.

But grocery retailers are lagging because many have older systems that were set up in the 1970s and '80s. Among grocers, global retailers like Ahold tend to be working on remediation, and national chains are at least gearing up, says Patrick Walsh, director of industry relations at the Food Marketing Institute in Washington. "The challenge is whether the wholesale community and small, independent operators will be prepared," he says.

Failure to comply isn't seen as potentially catastrophic — just unwise. "This is not a Y2k in any way, shape or form," says Gropp. "Companies are not going out of business if this doesn't get done."

"It won't cause systems to crash," Garton explains. "You can still do business, though you may have to reconstruct data and fix problems."

Huge point-of-sale problems aren't anticipated, because scanners built since the mid-1980s can already process 13-digit codes. The trouble will arise if larger codes are incompatible with back-end databases.

"Even if point-of-sale scanners can read the bar code, you won't be able to process the data as a result of the scan," says Chris Sellers, a Chicago-based retail consultant at Electronic Data Systems Corp.

In other words, you may be able to sell an item to a customer, but your inventory systems won't know it's gone, your stocking system won't reorder, and your revenue systems won't record the sale. The trouble this could cause will depend on the volume of non-U.S. items and new items with 13-digit UPCs that you trade.

SUNRISE GLOSSARY

Terms you need to know to understand the global move to longer retail bar codes:

QuickLink 39125
www.computerword.com

Remediation, Again

Sunrise 2005 is like Y2k in that retailers have to hunt down and expand numeric fields in their databases. But it's also different. "It's not a date field, which is relatively discreet and easy to find," Sellers notes. And the code can show up in unexpected places. For example, product codes are used internally in financial systems and externally with suppliers of materials and packaging, distributors, and logistics services. "It's messy," says Gropp. "These numbers show up in almost every report, every screen, every file you process."

Gropp has integrated the Sunrise 2005 remediation into virtually every IT project for years. "It's not one thing; it's a piece of a lot of other projects," he says. "Every time we get into a system or we're designing a new application, we make sure that it can process the codes," he explains. "If we're updating a purchasing application, we incorporate this into it."

More Hurdles

Finding the code is one challenge, but there are others. Under the current UPC system, the first half of the number is a vendor ID, the second half is a product ID. The code as a whole is supposed to be "nonintelligent," signifying nothing except a unique product. But some retailers have been "parsing" the code, using the first six digits as a vendor reference code to point to their internal data on that vendor. Parsing the code in this way will no longer work. Because EAN codes and new UPC codes will have vendor numbers up to 10 digits in length, the first six digits will no longer be unique.

If retailers want to use the number as a vendor reference, they will need to use the entire number, Garton says. "But the tougher part is how people have entire systems built on this," he says. "I believe this [problem] is bigger than most people are admitting."

For companies that have yet to begin remediation, the time and effort involved will depend on their size, the state of their technology and whether they have been parsing code. EDS's Sunrise 2005 services for large companies include a four- to six-week assessment and a three- to nine-month remediation.

The current economic doldrums and enduring Y2k fatigue among executives make this a difficult time to garner enthusiasm for another IT deadline. Gropp says that among his peers, other priorities have often taken precedence. "They say, 'I've got other projects with higher return,' " he says.

You can put Sunrise 2005 on your company's radar by accentuating the positive, Sellers says. "You don't want to say, 'We have to do this,' " he explains. "You want to say, 'Here are the benefits.' " (See "What's in It for You?")

Sunrise 2005 is a voluntary deadline, but if you deal in a large volume of non-U.S. or new products or you share data electronically with suppliers, it should be a priority. "If you want good customer service and you want to share standardized data, you have to do this," Garton says. Finefield agrees. "We learned years ago that the best thing you can do is be standards-compliant," he says. "Typically, retailers wait too long and then hurry to catch up. If it's going to impact your business, you need to do it." ◗

Melymuka is a Computerworld *contributing writer. Contact her at kmelymuka@yahoo.com.*

Sunrise 2005 Compliance

Retailers were asked whether they could support the following product codes today:

BASE: Survey of 60 large North American retailers.

SOURCE: UNIFORM CODE COUNCIL INC., LAWRENCEVILLE, N.J., 2003

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WANTED: SECURITY TAG TEAM

IT and engineering must work together to secure dangerously vulnerable process networks. By Mathew Schwartz

WHEN AN EMPLOYEE from an Australian company that makes manufacturing software got fired in early 2000, he applied for a job with the local government, but was turned down. In retaliation, he got a radio transmitter, went to a nearby hotel where there was a sewage valve, and used the radio to hack into the local government's computerized waste management system.

Using software from his former employer, he released millions of gallons of raw sewage near the hotel grounds and into rivers and parks.

"He did this 46 times before he was caught," notes Joe Weiss, a process-control cybersecurity expert and consultant at the Cupertino, Calif., office of Kema Consulting. "The first 20 [times], they didn't even know it was cyber," meaning an external attack launched using a computer, he says. "From 20 to 45, they finally figured it was cyber, but they didn't catch him until 46." Though this person never worked for the wastewater utility, he was still able to break into its supervisory control and data acquisition system, which was designed with a big security assumption in mind — that only insiders would want to access it.

Hundreds of thousands of similar process systems and networks used in dozens of industries worldwide remain dangerously vulnerable. And like it or not, IT managers need to address this problem despite three enormous challenges: the traditional barriers between IT and the engineers who typically run process networks, the highly customized nature of process applications, and the lack of security software for process applications and networks.

Historically, IT has had little, if anything, to do with process-control systems, because they run reliably and rarely crash. Instead, IT focused strictly on corporate data networks. But that needs to change, experts say.

Process-control networks are to manufacturing environments what IT is to an office — endemic. For example, more than 2,400 oil, natural gas and chemical companies in the U.S. employ process-control networks in their manufacturing systems. Other heavy users of process networks in-

Continued on page 40

TOM GOOD

MICHAEL BRANSCOM

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Continued from page 38

clude the power, water, food, drug, automobile, metal, mining and manufacturing industries.

For example, process networks in the chemical industry control chemical-making equipment and monitor sensors. If anything goes wrong, such networks react by adjusting the environment in predefined ways, such as shutting off gas flow to prevent leaks or explosions.

One company that's taking process network security seriously and involving IT is Du Pont Co. in Wilmington, Del. Tom Good, a project engineer at the chemical manufacturer, has been leading its 20-month-old effort to categorize and reduce its process-control system vulnerabilities.

Du Pont's philosophy for dealing with this problem, he says, is that "on all of our critical manufacturing processes, we are either going to totally isolate our process systems from our business systems by not connecting our networks, or we're going to put in firewalls to control access."

To tackle process-control network security, Good says Du Pont formed a team made up of IT staffers, who understand networks and cybersecurity; process-control engineers, who understand the process-control equipment; and manufacturing employees, who understand manufacturing risks and vulnerabilities.

To give the three groups visibility, each reports to a separate member of a committee that's leading the effort. The team first discerned which control devices are critical to manufacturing, safety and continuity of production. Then the team identified the assets of each — hardware, data, software applications — and researched relevant vulnerabilities. Only then did it begin the arduous task of testing fixes and workarounds to see which ones might work for which machines.

Even in a manufacturing environment that uses similar process-control hardware and software, precise vulnerabilities differ by environment. "Dealing with, say, a water treatment process on effluent out of a plant is considerably different than dealing with a production operation, where you might be dealing with vessels under high-temperature and high-pressure conditions," says Good.

On the basis of its research, the team is also deciding how to separate networks and where process-control firewall appliances should go. High-end enterprise firewalls aren't required; each process network supports only 10 to 50 users. "The greater cost is in the network equipment and re-engineering activities to separate networks and place critical process-control devices together on the clean side of the firewall," says Good. "The challenge is to accomplish these tasks on online control systems while keeping the process running."

The Challenge

Until about 15 years ago, most process-control networks were secure because they were extremely proprietary. Then customers demanded less expensive front ends and TCP/IP networking. Such networking opened up process-control systems to common vulnerabilities, then the Internet, yet the underlying systems weren't strengthened to make up the security difference.

The methods IT uses to secure data networks can't be used to quickly secure control systems. Every component can have multiple critical functions. For example, at a refinery, various sensors help ensure safety when filling tankers — whether there's a truck beneath the filler, whether there's gas available. If the truck's tanker reads full or the truck moves away, the process must interrupt.

Process-control hardware is also difficult to secure. Application customization is so rife that it's impossible to run antivirus software on some PCs and Unix boxes, says Kris Zupan, CEO and chief technology officer at e-DMZ Security LLC, also in Wilmington.

Likewise, patching the operating system can require rewriting the application. In the rare cases when applications can be patched, shutting down the always-on machines is costly — and a patch might have unintended effects and compromise production.

Other information security tools don't work well in these environments either; for example, complicated passwords can slow access in an emergency. As a result, every machine of a particular type worldwide may have the same password. In other words, anyone who has ever used one type of machine theoretically has access to all machines of that type.

IT managers everywhere will have to learn that safety in process control is paramount. That's a switch. IT's traditional goal is "data confidentiality, data integrity and data availability," says Theresa Grant, director of information security at The Dow Chemical Co. in Midland, Mich. "However, in the process-control arena, the very first objective is safety, the second is safety, and the third is operational integrity." If certain systems fail, people can die.

To help companies assess and remediate process-control vulnerabilities, various initiatives are under way. The Instrumentation, Systems and Automation Society, a Research Triangle Park, N.C.-based standards body, is developing best practices for securing process-control networks.

Various organizations, including petroleum and chemical trade associations, have commissioned studies to find best security practices for their industries. Studies in hand, they hope to persuade each industry to implement security best practices.

Another initiative, at least at Du Pont, is to get Microsoft Corp. to better detail its patch practices. Good says too much time is spent testing patches to make sure they work with the process-control applications, when in many cases, the patch might not even be applicable.

Du Pont sat down with Microsoft representatives and "exposed them to our world of safety — where any safety incident is unacceptable," says Good. "I don't know where the awareness-building will lead. If Microsoft measures what it's doing as 'better' because it had 200 fixes this year vs. 250 fixes last year, there's obviously a gap in meeting the level of performance that is important to our industry."

The more realistic solution is for IT and engineering departments to cooperate on the problem. For example, IT knows how to better secure things — "change management, release management, providing things of that nature," says Dow's Grant. Engineers understand process-control intricacies.

Hence, any fix-it team needs both kinds of experts, as well as anyone else with a stake — manufacturing, supply chain — to help explain what touches what. That team would map computers, processes and networks and test where security can be applied. It's exacting work, warns Zupan: "If you modify the controlling system, it can produce hazards that not even the designers predicted."

The irony, of course, is that companies demanded off-the-shelf components, and now they're paying the security price. Network separation is likewise no simple panacea. "It's been there in limited fashion [before], but a lot of times, there's a lot of back doors and a lot of Web front ends that need to be protected as well," says Michael Rasmussen, an analyst at Forrester Research Inc.

Process-control hardware can have a life span of 15 years. No doubt, some security vulnerabilities will remain as long as current hardware remains in use. By tackling the greatest risks, however, companies can help minimize their process-control system vulnerabilities and better secure manufacturing environments.

Schwartz is a freelance writer in Somerville, Mass. He can be reached at Mat@Penandcamera.com.

HOW TO GET STARTED

1 Understand and acknowledge that there's a problem. For IT managers, "one of the biggest things is literally just understanding" the issues, says Kema's Joe Weiss.

2 Mitigate the IT/engineering culture clash. "One approach that can be taken is just awareness – sitting down with the right folks on the manufacturing side, taking them out for lunch and sharing with them your information security strategies. Having that dialogue, that's where it begins," says Dow Chemical's Theresa Grant.

3 Work on cross-functional teams. IT needs to "work with operations on a day-to-day basis" to really understand process systems, what is really applicable to these types of systems and what is needed to improve their security, says Weiss.

4 Get your CIO involved. Engineers report to the vice president of operations or manufacturing; IT reports to the CIO. They're in different silos. Those two need to talk, along with the heads of risk management and physical security.

5 Foster a leadership group. Dow created a global information management team with representatives from all work processes to share information and challenges that other lines of business might not understand.

– Mathew Schwartz

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MANAGING THE TEMPORARY PLAYERS

Shell uses a Web-based system to reduce the costs and headaches of procuring short-term labor. BY THOMAS HOFFMAN

MICHAEL BARTALOS

LIKE OTHER BIG, geographically dispersed companies, Shell Oil Products US spent a lot of money on temporary contract labor to fill short-term requirements for everything from accounting to IT consulting.

But while the Houston-based subsidiary of Shell Oil Co. still spends nearly $100 million annually for contract labor, it now takes a more cost-effective approach, thanks to its implementation late last year of a contingent workforce management system.

The Web-based system from Denver-based IQNavigator Inc. helps Shell Oil Products automate its contingent workforce management processes, including supplier qualification, requests for proposals, time-and-expense entries and invoicing.

Prior to the initiative, functional and business departments throughout Shell Oil Products applied a hodgepodge of manual processes to manage temporary and contract labor, says Kim Chapman, team leader for the contingent workforce management project. "We were spending quite a bit of money, and the team was charged with looking at how we could reduce our spending" through improved sourcing and better rates, says Chapman.

The team, which included representatives from Shell Information Technology International Group — an IT services arm that supports multiple Shell divisions — set a goal of reducing contingent workforce spending by 8% annually. Thanks to the use of IQNavigator, a set of process improvements and a reduction in the number of labor suppliers it worked with, Shell Oil Products was able to surpass its annual cost savings target in less than two months.

Reducing the number of contingent labor suppliers was one of the first steps. For instance, Shell Oil Products had been working with more than 20 suppliers of temporary administrative personnel, says Chapman. But it's now working with just four preferred suppliers.

By consolidating, Shell Oil Products is in a better position to negotiate labor rates, and there are fewer supplier relationships to manage. The consolidation, as well as automation and process improvements, lets Shell Oil Products get volume and early-payment discounts from its labor suppliers. By virtue of these discounts, the company has cut its payments to new contractors by an average of 28%, Chapman says.

The labor vendors like it, too, because it means they can become preferred providers for all of the divisions of the company, not just one or two.

"It's a vendor's dream. It's still up to you to perform, but now you won't be limited" in the number of corporate divisions you can work with, says Pamela O'Rourke, president of Icon Information Consultants LP, one of the preferred consultants that Shell Oil Products taps for temporary labor.

Getting Suppliers to Pay

One reason Shell Oil Products has gotten such swift returns on its investment is that it's not paying for IQNavigator. The software is paid for by labor suppliers such as Icon Information.

Having suppliers pay access fees for contingent workforce management software "has become the norm in the industry," says O'Rourke. She points to similar arrangements Icon has with J.P. Morgan Chase & Co. and Waste Management Inc., where system access fees typically range from 3% to 5% of an invoice, she says.

A Gartner Inc. report last year labeled IQNavigator a "trendsetter" in this market niche and said the company had an impressive lineup of large customers. But while the use of contingent workforce management systems might be gaining traction in the U.S., it hasn't drawn much interest in Europe, notes Wolfgang Bernhart, a consultant at Arthur D. Little GmbH in Wiesbaden, Germany.

At Shell Oil Products, Chapman says, the biggest challenge was getting different departments to change the way they procure temporary and contingent labor and to be willing to use a smaller number of suppliers.

"We're trying to educate people internally that this is business and that we're trying to get the right people at the right price," says Chapman. "People don't like that kind of scrutiny and aren't always accepting of that level of change."

So it didn't hurt that the company's CEO and chief financial officer sponsored the project.

To help other departments and divisions accept the new approach to hiring contract labor, Chapman and his team "did a lot of change management work," he says. It included holding awareness sessions with suppliers and internal managers and communicating the benefits of the new approach. "Some areas were more receptive than others," says Chapman.

Nevertheless, the project is moving apace. In December, Shell Oil Products' human resources, supply chain and special projects groups were added to the system. The IT division and retail operations units were added in February and March, respectively, followed by the company's transportation division in April and its refining and lubricants businesses in May.

The overhaul has transformed the way Shell does business with labor providers. Says Chapman, "We couldn't have done this five years ago."

SHELL OIL PRODUCTS US

HEADQUARTERS: Houston

PARENT COMPANY: Shell Oil Co.

BUSINESSES: An oil refiner and marketer, with four refineries in the western U.S.; it sells fuel at 22,000 gas stations (along with partner Motiva Enterprises LLC). The company also makes lubricants such as motor oil.

HISTORY: The unit was acquired from Texaco and recently absorbed Pennzoil-Quaker State.

SOURCES: WWW.HOOVERS.COM; WWW.SHELLOILPRODUCTSUS.COM

TAMING TEMP COSTS

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BRIEFS

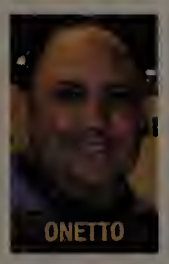
Companies Lack E-mail Policies

Employers are doing a poor job of managing employee e-mail and preparing for potential e-mail-related lawsuits and regulatory audits, according to a recent survey of 1,100 companies from the American Management Association, The ePolicy Institute and Clearswift Ltd. Here are some key points:

- 34% of employers have implemented written e-mail retention and deletion policies.
- 22% have fired employees for violating e-mail policies.
- 14% have been ordered by a court or regulatory body to produce e-mail, up from 9% in 2001.
- 48% offer e-policy education, and 27% provide e-mail retention and deletion training.
- 90% have installed software to monitor incoming and outgoing e-mail, but only 19% use technology to track internal e-mail.

Former GE Exec Joins Solectron

Marc Onetto, a former General Electric Co. executive, last week joined Solectron Corp. in Milpitas, Calif., as executive vice president of worldwide operations. Onetto, 52, will be responsible for worldwide manufacturing, materials management, quality, new product introduction, IT, logistics and repair operations. From 1992 through last year, he held several positions at GE, including CIO in the GE Medical Systems unit.


ONETTO

E-billing Cuts Costs

A B2B biller could save $2.7 million per year by delivering all business bills over the Web. Paper bills cost an average of $5 each to produce and deliver; Web-based bills cost $2 each, according to a Gartner Inc. survey of 100 large companies that send an average of 75,000 bills each month.

NORBERT J. KUBILUS ■ PEER TO PEERS

Sarbanes-Oxley: Where IT and Finance Meet

THERE'S A GIANT SIGH OF RELIEF rising in the executive suites and corporate boardrooms of large, publicly held companies around the country. Why? Because the U.S. Securities and Exchange Commission has postponed implementing certain key sections of the Sarbanes-Oxley Act for nine months. This gives the SEC more time to complete the regulations that all SEC-regulated companies will have to follow.

Postponing SarbOx (as it's affectionately called) will give CEOs, CFOs and external auditors more time to institute procedures for keeping track of all financial information, from the moment of inception to the final submission in an annual report to the SEC. It also delays the SarbOx mandate that every public company submit an annual report to the SEC that assesses the effectiveness of its internal controls for financial reporting.

Sounds like a purely financial issue, right? Not quite.

Yes, SarbOx is fundamentally financial legislation. Enacted in part as a reaction to Enron and other corporate financial scandals, the law's goal is for public companies to produce more complete and accurate financial reports. The emphasis on internal controls, however, goes far beyond policies, procedures and external audits.

The SEC still must define what "internal controls" means in terms of compliance regulations, but one thing is almost certain: Any public company that utilizes IT as part of its financial business processes will find that IT controls are included in the definition. SarbOx compliance could also mean an overhaul or upgrade of financial transaction and reporting systems for most companies, regardless of size, in order to meet regulatory requirements for more accurate, more detailed and speedier filings.

So far, CIOs have been warming the bench, while CEOs, CFOs, attorneys and auditors attempt to address known and anticipated SarbOx compliance issues. Now is the time for the CIO to get into the game and step up to take the lead on the IT control issue. The CIO should view the IT organization and infrastructure as if he were the CEO of a "business within the business." Would the CIO be comfortable putting his neck on the line during a SarbOx compliance audit? Probably not.

Although regulations haven't been defined for compliance with SarbOx Section 404 — which mandates an audit of internal controls — there are a number of areas where the CIO can apply common sense and best practices to comply with the act's goals.

Examining the control processes within the IT organization relating to financial systems is the logical place to start. For example, segregation of duties within the systems development staff is a widely recognized best practice that helps prevent errors and outright fraud. The people who code program changes should be different from the people who test them, and a separate team should be responsible for production change control.

Homegrown financial systems are fraught with potential data-integrity problems, but packaged systems aren't totally immune, either. Although leading ERP systems offer audit-trail functionality, customizations of these systems often bypass those controls. The CIO has to work with internal and external auditors to ensure that customizations can pass muster.

Closely related to development and change controls are project management methodologies. The leading cause of systems implementation failure continues to be poor project management. The CIO must ensure that the IT department has a process to ensure a successful selection and implementation of new or upgraded financial systems within defined schedules, budgets and acceptable levels of risk.

Records management is another area of concern for the CIO as the long-term custodian of corporate data. How a company stores and transmits electronic documents — and whether or not they're deleted — can have significant legal and financial consequences. The CIO should work with the CEO, CFO and corporate attorneys to create a document-retention-and-destruction policy that addresses what types of electronic documents should be saved — and for how long.

Ultimately, SarbOx compliance will require a close working relationship involving the CEO, CFO and CIO. Getting into the game starts with running IT as a business and strengthening IT internal controls. ◗

MORE COVERAGE

See all of *Computerworld*'s coverage of the Sarbanes-Oxley Act at our Web site:

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Data Warehouse Architect Specialist

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SOFTWARE PROGRAMMER

Participate in software dvlpmnt process, including generation of software specs & reqrmnts, prep. of detailed software dsgn documentation, modular decomposition of abstract functional reqrmnts into software module specs & templates, software code walk-throughs & reviews, & black box/white box testing. Will utilize C & C++ programming langs. in Embedded software for communication/network software dvlpmnt, COM component dvlpmnt, Basic language as used in Vis. Basic environment, & Java language. Will work in Windows NT operating sys. including Windows, COM, & ActiveX component technologies, MS Office, Networking, Communication & related tools. Utilize software config. & control tools. BS in Comp. Sci. or Engmg + 4 yrs exp. in position offered or as a Software Engnr or Sys. Engnr. Must have: (i) exp. w/C & C++ programming languages, COM component dvlpmnt, Basic & Java languages, Windows NT operating sys., ActiveX, MS Office & related tools & software config. & control tool; & (ii) worked on Network/Communication software dvlpmnt, incl. working knowledge of SNMP V2 MIBs. 40 hrs/wk, OT as reqd. 8 am - 5 pm, $64,240/yr. Applicants submit resumes to Site Manager, PA CareerLink - Westmoreland County, 300 East Hillis Street, Youngwood, PA 15697-1808. Please refer to Job Order Number WEB 337601.

Software Engineer: Participate in the development design specifications and implementation of commercial applications. Ensure design integrity, timely delivery and high code quality of implemented work. Will participate in the design, development and support of proprietary software solutions in Web-based and Client/Server architecture. Develop software using Object Oriented Design technologies to create flexible large scale databases and information management systems. Requires: M.S. in Computer Science or an Engineering or quantitative field with no experience or B.S. in Computer Science or Engineering or quantitative field and 5 years experience in software development. Demonstrated ability in Java, C ++, XML, Visual C ++, and MFC. Demonstrated knowledge of multiplatform development distributed design concepts and data base access. 40hrs/wk (8:00 a.m. to 5:00 p.m.) $90,461.00/yr. Send two resumes/responses to: Case Number 200201557, Labor Exchange Office, 19 Staniford Street, 1st Floor, Boston, MA 02114.

Senior Developer: Design and develop customized user tools for various client applications using e-commerce technologies and systems integration with object oriented analysis and design. Develop E-commerce projects using J2EE architecture, develop components using EJB, Servlets, JSP, JMS, Java Cryptography, Applets, Beans, Java Applications. Work on components to access different types of databases LDAP, Oracle and DB2. Work with Rational Rose to design object model for projects. Work on data-Warehousing projects using Oracle, Hyperion, Cognos, MicroStrategy. Work on tools for Y2K conversions using REXX, ISPF, COBOL. Implement projects Y2K projects Using CICS, COBOL, PL/1, DB2, IMS, DB/DC, JCL, PACRASE, MANTIS and MVS. Requires: Bachelors in Electrical Engineering or its equivelence and 2 years experience in e-commerce technologies. 40hrs/wk (8:00 AM to 5:00 PM); $84,000.00/yr. Send two resumes/responses to: Case Number 200202467, Labor Exchange Office, 19 Staniford Street, 1st Floor, Boston, MA 02114.

Architect, Hardware Development Group. Responsible for 1) Algorithm Development and Simulation aimed at proving out algorithms for incorporation into future graphics cores, (2)Algorithm Migration aimed at implementation specification for graphics chip,(3) supporting chip development team for such implementation, and(4) Industry and Academia interaction including giving presentations and writing technical papers. Requires Ph.D. in Computer Science plus 4 years exp. in job offered or 4 years directly related professional experience. Rate of pay: $100,000.00/year. Hours: 40/week - 9 am to 5pm. Reply by resume only (2 copies) to Case # 200201558, Labor Exchange Office, 19 Staniford Street, 1st Floor, Boston, MA 02114

Senior Design Verification Test Engineer: Develop and integrate all aspects of hardware diagnostics. Will develop read/write and device driver capability for new hardware product components using in real time operating OS in addition to working on data communication technologies such as SONET/SDH, 10/100 Ethernet, ATM and legacy transport protocols such as DS1 and DS3. Requires: Bachelor of Science in Electronics and Engineering and 2 years experience in Information Technology. Must have hands on knowledge of C, C++, Assembly, and OOD computer languages. 40hrs/wk (8:00 AM to 5:00 PM); $77,000.00/yr. Send two resumes/responses to: Case Number 200202532, Labor Exchange Office, 19 Staniford Street, 1st Floor, Boston, MA 02114.

Software Engineer (Bioinformatics)

Genaissance Pharmaceuticals, Inc. has an immediate opening in its New Haven, Connecticut facility for a Software Engineer (Bioinformatics). Will develop and execute software system test plans and perform various database, data mining, integration research, and design and testing assignments in the development of computer systems and applications in the field of Bioinformatics. Must possess a Ph.D. in Life Sciences, Mathematics, Physics, or Computer Science; and relevant work experience, including experience with mathematical modeling and concepts, such as probability and statistical inferences and algorithmic proofs, socket programming for BSD Kernel and Java, Oracle computing-based environment, Java and SQL programming languages, and UNIX operating system.

Resume and/or cover letter must reflect each requirement above and specity reference code SZ/SFB or it will be rejected. Forward resume to: Leigh Webb, Human Resources Associate, Genaissance Pharmaceuticals, Inc., Five Science Park, New Haven, CT 06511. We are an equal opportunity employer.

SOFTWARE ENGINEERS (Multiple Openings): Candidate must have 1-4 yrs. of exp. in Software Development/Programming. BS/MS Comp.Sci/Engg/Bus. or related field. Exp. in all phases of software development life cycle. Knowledge of EJB, Vee Web Logic, Sebsphere, RMI, DB2, PowerBuilder, Rational Rose, C, C++, Java, J2EE, J-Builder, Visual Basic, JDBC, XML, HTML, LDAP, PHP, Oracle, Sybase, ASP, COM/DCOM, SAP, SQL, Apache Web Server, CICS, JCL, ABAP, Siebel, and Object Oriented Programming Languages. Exp. in GUI development on Windows platforms. Familiarity with both UNIX & Windows environment. Knowledge of TCP/IP, SSH & Web Services. Exp. with Windows database technologies & database design. Strong teamwork & communications skills. May require traveling to client sites in the U.S. Top $$ + bnfts. Mail resume to: Yash Technologies, Inc., 605, 17th Ave., Suite #1, East Moline, IL, 61244.

BellSouth, a leader in providing local and cellular telephone, paging and mobile data services has multiple openings for the following positions in its Atlanta, Georgia office:

Senior Software Developer
Software Engineer
Portal Content Analyst - Latin Market - Spanish fluency required
Channel Analyst

All positions require a relevant bachelor's or master's degree or foreign degree equivalent and relevant experience including experience with Homebase software.

For consideration, please forward your resume to: Ms. Lisa Burlingame, BellSouth, 2247 Northlake Parkway, Suite 800, Tucker, Georgia 30084. Please do not email or fax resumes. EOE.

Software Engineers & Programmers: Analyze, design, develop, test and maintain a highly sophisticated/interactive Web Portal, e-commerce and content management system encompassing over 500 categories and 22,000 products/services and software solutions employing state of the art engine search technology including DB2 7.0, WebSphere 3.5, IBM Server, Tomcat, Oracle/Oracle 9iAS, WebLogic, Microsoft Visio, UML, P3P, IBM policy Editor, SilverPop & Accucast email servers, SalesLogix, Proficient, Web Trends & KeyLine tracking, Starteam, Unix Shell Scripting, Ultra edit, Top Style Pro, XML, J2EE and related technologies. For Info or to apply, contact Human Resources, KnowledgeStorm, Inc., 2520 Northwinds Parkway, Suite 300, Alpharetta, GA 30004. EOE. No phone calls please.

Aluminum Blanking has openings for system or programmer analyst responsible for Oracle database administration & Intranet management. Candidates must have BS with exp. in Oracle DBA. We offer competitive wage with full benefits. Please contact: landerson@albl.com. EOE

IT professionals (programmers/system analysts, software engineers) wented by Advanced Technology Group USA. Minimum requirement is BS. Skills in Java, Oracle, SQL, HTML, WebLogic, JSP, VB, EJB are strong plus. Please send resume to info@atgusainc.com. EOE

Systems & Software Test Engineer - ReqS BS-CS/CE with 1yr exp. Knowledge of iDen Technology & phone configurations; IPTF, ISDS, Xflash, WedbJAL, RSS, DDTS, & Clear Case req'd. Mail resumes to Signature Consultants, 2200 W. Commercial Blvd, #207, Ft. Lauderdale, FL 33309.

Software Developer - Reqs BS or equiv. CS/CE with 1yr exp. Knowledge of iDen Technology, UIS frame work of iDen phones and phone configurations, SDS, IPTf, Xflash, WedbJAL, RSS, DDTS, Clear Case req'd. Mail resumes to Signature Consultants, 2200 W. Commercial Blvd., #207, Ft. Lauderdale, FL 33309.

BellSouth, a leader in providing local and cellular telephone, paging and mobile data services has multiple openings for the position of Systems Administrator in its Atlanta, Georgia office: Position requires relevant bachelor's degree or foreign degree equivalent and relevant experience. For consideration, please forward your resume to: Ms. Lisa Burlingame, BellSouth, 2247 Northlake Parkway, Suite 800, Tucker, Georgia 30084. Please do not email or fax resumes. EOE.

Computer Programmers: Must have 4 years of experience plus a BS in Comp/Elect Eng or related field. Mediaspace Solutions, 101 Merritt 7, 3rd Floor, Norwalk, CT 06851. Please send resumes to jobs@mss-mail.com in MS Word or Adobe Acrobat format.

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Email: rod@kamaco.com

Application Development Consultant needed at client sites to build telecom enterprise business appl systems for business n/work inventory mgmt & svc delivery: For web based GUI dvlpmt using tools such as Java, JSP, Servlet, XML, XSL, Java Script, Perl/CGI on servers such as Oracle9iAS, Apache, JURN, Web Logic, Tomcat; & for back-end & interface using tools such as C++, Java, CORBA, EJB, JDBC, XSQL + tools on Unix, PC & Oracle DB. Send resume to: Hireme, Global Consultants, 25 Airport Rd, Morristown, NJ 07960.

Prog/Analysts(Job 90) to analyze, design/develop and enhance online & batch programs using Java, JSP, Jscript, Servlets, HTML, COBOL, CICS, DB2 etc. under Windows and IBM ES 9000 envir; perform unit/system level testing, requirement analysis; implement new/modified programs; debug, maintain,document process. Require: B.S. or foreign equiv. in CS/Engg(any branch) & 2 yrs of exp. in IT. Send Resume to: Priscille Vickers/HR, Transplace, 509 Enterprise Drive, Lowell, AR 72745. Must specity on cover letter applying to Job 90.

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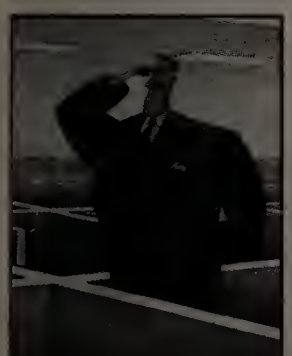
Network Systems and Data Communications Analyst: Analyze user & software reqs & plan computer systems of networks; analyze, evaluate, test & troubleshoot computer systems, computer networks, PBX network, telecomm systems & A/V systems; design info and comm system; augment existing network of computers, printers, scanners, projectors, etc; manage user accts in network. Req Bachelor's degree in Electronics Eng'g. or related, or equiv and 1 yr exp in job offered or as Network Eng'r. $14.67/hr, 40 hpw, M-F, 8a-5p. Send resume to Larry Farish, Manager, Premier Hospitality LLC, 400 Greymont Ave., Jackson MS 39202.

Prog Analysts to analyze, design s/w appls using SAP R/3, ABAP/4, Workflow Technology, C, C++, VB, Oracle, MS SQL Server on UNIX and Windows os; gather and document reqs from user community; test/troubleshoot project appl code according to system objectives. Require a B.S. or foreign equivalent in CS/Engg (any branch) or related field with 2 yrs exp in IT. Highsalary. F/T position. Travel Required. Resume to HR, Smartsoft International, Inc., 4898, South Old Peachtree Rd, Norcross, GA 30071



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VegaStream, Inc., located in Boca Raton is seeking F/T expd. Manager of Product Support to research, design, and developing of computer software systems, in conjunction with hardware product development. Analyze software requirements to determine feasibility of design within time and cost constraints. Consult with hardware engineers and other engineering staff to evaluate interface between hardware and software, and operational and performance requirements of overall system. Formulate and design software system, using scientific analysis and mathematical models to predict and measure outcome and consequences of design. Bachelor's degree in Computer Science, competitive salary. Fax resume to H.R. (561) 995-6027.

Sys/Analysts to analyze, design, customize and implement businessapp!s using Oracle Financial Applications, PL/SQL, SQL Plus, SQL Loader and Oracle; perform data conversions, customize Forms/Reports using Oracle Applications standards; document, maintain & update development process;perform tuning, modification, troubleshooting and debugging of system software.Require: BS or foreign equiv with concentration in CS/Engg(any branch)/Business admin. & 2 yrs exp in IT. In lieu of BS, 3 yrs of academic studies towards a Bachelors plus 1yrs of exp in Oracle Applications will be accepted. Travel required. High salary. F/T. Resume to: HR, Fourth Technologies, Inc., 585 Tollgate Road Suite I, Elgin, IL 60123.

Prog Analysts to analyze, design, code and maintain web/client server applications using Java, C, C++, CORBA, J2EE, HTML, Servlets, XML, Weblogic Server, IIS, Oracle, MS Access etc under Windows, Sun Solaris OS; perform automation of functional/regression testing with WinRunner, eTester and Astra Quick Test; provide on site maintenance support such as debugging, modifications, fine tuning & code optimization. Require: BS or foreign equivalent in CS/Engg(any branch) with 2 yrs exp in IT. High salary, F/T, Travel involved. Resume to: HR, Semafor Technologies, Inc, 3300 Holcomb Bridge Road, Suite 212, Norcross, GA 30092.

SENIOR (UNIX) SYSTEMS ENGINEER

A global consumer packaged goods company based in the Greater Boston area, engaged in the manufacture, distribution and marketing of a range of personal care products, has an immediate need for a highly skilled Senior (UNIX) Systems Engineer. This senior-level position involves the analysis and proposal of system hardware, software, and system solutions for centralized HP-UX, AIX and NT enterprise-class computing platforms, running SAP applications in an Oracle environment. Minimum educational requirements include an Associates degree (or equivalent) in Computer Science, Math, MIS, Electrical/Electronic Engineering, or similarly relevant field. Minimum experience required is at least seven (7) years specifying HP-UX hardware / software system solutions, at least two (2) years of which specifically was for SAP R/3 in an Oracle 7.x and 8.x environment. Specific requirements include the demonstrated ability to implement complex external disk subsystem integration of EMC and HDS storage systems with HP-UX and AIX operating systems. Also required is the demonstrated ability to specify, install and configure HP 9000 series N4000 and newer Enterprise Servers. Additionally required is the demonstrated ability to install, configure and test HP MC/ServiceGuard clustering and EMC SRDF software. Further required is the demonstrated ability to write PERL scripts and convert Shell scripts to PERL. Finally required is the demonstrated ability to implement enterprise backup solutions using HP OmniBack integration with SAP brtools. Base salary is $93,000 per year. Benefits include ten days paid vacation, contributory medical, dental, disability, life insurance, and other industry-competitive benefits. Qualified applicants respond with two (2) copies of resume only to: Case # 2002-02333, Labor Exchange Office, 19 Staniford Street, 1st Floor, Boston, MA 02114. An EOE/MFHV.

Principal Software Engineer responsible for project management of new systems architecture projects. Will oversee & participate in design, development, testing & implementation of new software; perform client/server application design & development; review technical requirement specifications for software code development; and solve technical problems related to the software development as needed Will apply knowledge of C/C++, HTML, Visual Basic, UNIX & various database applications. Requires Bachelor's or equiv in CSc., Engineering, Math or Physics, plus 5 yrs experience in Job Offered OR 5 years' developing client/server applications. Alternatively, will accept Master's or equiv in C.Sc., Eng, Math or Physics, plus 3 yrs in Job Offered OR 3 yrs developing client/server applications. Candidate must also possess demonstrated expertise in design & development of COM, COM+, business objects & web-based user interfaces; dem expertise in design & development of multi-threaded user interface interactive systems; and dem expertise in design & development of remote access interactive tool w/in a multi-hardware/software/network infrastructure. Sal: $90,500/yr M-F, 9AM-5PM. Send 2 resumes to Case # 2002-01701, Labor Exchange Office, 19 Staniford St., 1" fl., Boston, MA 02114 EOE. Applicants must be US workers eligible to accept full-time employment in U.S.

Manager, Software Development. Manage the development of software to combine physiological and operational requirements in real world operations. Design customized scheduling software for North American railroad operations. Supervise members of the software development team and contract employees. Draft marketing products for company's software products. Manage creation of user manuals and training material for software products. Provide training to clients on software products. Oversee strategy for system development. Sales presentations for software products to industry clients. Supervise and manage software engineers and other professionals engaged in the following job duties: Digital Signal Processing of physiological data (e.g.: EEG, EOG, ECG, video data); Feature extraction (understanding of the physiological underlying processes and the mathematical implications); Design and training of Artificial Neural Networks; Application of Pattern Recognition algorithms for classification of physiological data; Application of pattern recognition methods for predicting microsleeps; Development of software for modeling physiological processes (alertness model); Integration and modifying hardware for detecting driver fatigue; Testing hardware for detecting driver fatigue; Designing and programming of software to analyze data from tested driver fatigue detection hardware; Realization of programming tasks in MATLAB, C, Delphi, Assembler and Visual Basic. Requirements: Master's degree or equivalent in Computer Science, Engineering or related field plus 2 years experience in job offered or 2 years experience as a Software Engineer in the field of Artificial Neural Network. Must have at least 2 years concurrent experience with the design, training, and application of Artificial Neural Networks in industrial context, as well as MATLAB, C, Visual Basic, Assembler and Delphi. Salary: $99,500/yr. for 5 day, 40 hour work week, 9:00 a.m.-5:00 p.m. Submit two (2) copies of resume to Case #200201962, Labor Exchange Office, 19 Staniford St., 1st Floor, Boston, MA 02114.

Senior Software Engineer: Specify, design, develop and support various aspects of the products. Work within teams to define the next generation architecture of the company's products that include agents, networking, management tools and policy server. Work closely with members of the Product Management, Quality Assurance, Release Engineering, Documentation and Customer Support teams to ensure proper product development and support. Follow rigorous software engineering standards including development of product requirements, functional and design specifications and adhere to coding standards. Work with partners and industry groups to create and promote standards in security and e-commerce. Requirements include a Bachelor's degree or equivalent in Computer Science or related field and five years of experience in job offered or related field of software engineering. Applicants must have unrestricted authorization to work in the United States. Salary $87,000/year. 40 hours/wk. Respond with two copies of resume to Case #200202112, Labor Exchange Office, 19 Staniford St., 1st Fl., Boston, MA 02114.

HCL

HCL TECHNOLOGIES AMERICA, INC.

HCL Technologies America, Inc. and its affiliate companies, like HCL Technologies (Illinois) Inc., and HCL Technologies (Mass.) Inc., have multiple openings at its offices in Sunnyvale, CA; Stamford CT; Plano TX; Florham NJ, Irvine CA, Vienna, VA, Boston, MA, Chicago, IL, Detroit, MI as well as project sites throughout the United States for the following positions:

Software Engineers
Programmer Analysts
Systems Analysts
Database Administrators
Hardware Engineers
Budget Analysts
Systems/Network Administrators
Project Managers
Account Managers/Sales Managers/Business Managers
Sales Engineers
Industrial Engineers
Market Research Analysts
Management Analysts
Human Resource Representative
Accountants

Salary will be commensurate with education and experience. All positions may involve travel or relocating to various client sites through out the US.

For consideration please send your resume to:

HCL America Technologies, Inc.
Attn.: HR Dept. (Computerworld Ad.)
330 Potrero Avenue
Sunnyvale, CA 94085
Email: cwjobs@hcltech.com

Please indicate the location and the position you are applying for.

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SAP Information Technology Consultant - Initiate, plan & evaluate ways to improve global supply chain, scheduling & demand planning operations using SAP platform (R/3, APO, ABAP, BAPI). Perform cost-benefit analysis for different deployment strategies. Design integration model w/focus on Schedule-X interface w/ SAP R/3 Enterprise Resource Planning & APO. Develop Business Scenario flow documents & implementation analysis report. Validate global Demand Planning design in line w/US requirements. Design & configure Supply Network Planning. Must be willing to travel to project sites throughout US & abroad approx. 25-30% of time. Must have Bachelor's degree or foreign equiv. in Comp Sci, Engineering, Business or related field + 3 yrs exp in job offered or cross-modular SAP Programmer/Analyst. 8:30am-5pm, M-F. OT as needed. $102,549/yr Reply to Job Order #WEB-337067, Manager, Beaver County Team PA CareerLink, 2103 Ninth Ave., Beaver Falls, PA 15010-3957.

Quality Assurance Engineer needed to initiate, develop, implement structured SQA testing environments, processes, manuals, and automated projects, using advanced knowledge of computer science and engineering. Must have Master's Degree in Engineering or Computer Science plus work experience with the following computer languages:C, C++, Java, SQL, PL/SQL and testing tools WinRunner, LoadRunner, Silk, and Rational Robot. Send resume to: Links Technology Solutions, Inc., 444 East State Parkway, # 219, Schaumburg, IL 60173.

Senior Oracle Database Developers / Administrators (Pharmaceutical)

A global biotechnology company locally based in the Greater Boston area, is engaged in the research, development, manufacture, and marketing of prescription drugs, has an immediate need for two experienced, highly-skilled Senior Oracle Database Developers / Administrators (Pharmaceutical). The responsibilities of these senior level positions involve the design, setup and maintenance of clinical trial databases in Oracle, in accordance with FDA regulatory standards. Parallel responsibilities include computer system validation and database administration tasks. Minimum education required is a Bachelor's-level degree in MIS, CS, Math, Business, or a field of engineering. Minimum experience required is at least five (5) years involving Oracle database programming and administration, at least two (2) years of which specifically were in the pharmaceutical / biotechnology industry using PL/SQL, Oracle Forms and Reports. Specifically required is the demonstrated ability to design, set-up, implement and maintain clinical trial databases within the federally-mandated guidelines set forth in FDA's "Good Clinical Practices" ("GCP"s), and FDA's 21CFR11 re electronic signatures. Also required is the demonstrated ability to annotate a Case Report Form and program edit checks as indicated in a data validation plan. Additionally required is the demonstrated ability to perform validation of commercial off-the-shelf software and internally developed applications and tools, adhering to FDA regulatory standards on computerized systems. Finally required is the demonstrated ability administering databases, creating users and roles, and performance tuning Base salary is $ 80,000. Benefits include fifteen (15) days paid vacation, medical, dental, disability, life insurances, and other industry-competitive benefits Qualified applicants respond with two (2) copies of resume only to: Case # 200201818, Labor Exchange Office, 19 Staniford Street, 1st Floor, Boston, MA 02114. An EOE/MFHV.

ADVENT GLOBAL SOLUTIONS, INC.

Advent Global Solutions one of the fastest growing IT service companies has the following positions open in two locations:

SOFTWARE ENGINEERS: to research, design, develop computer software systems and lead new product development projects to timely completion. Ability to evaluate and design SAP software is required. Needs a Masters in CS/MIS or any related degree combined with 1 + years experience or Bachelors with 5 years experience in designing and developing computer software systems.

SYSTEMS ANALYSTS: to analyze, design and develop operational procedures to automate processing and to develop new systems to improve production. Knowledge of SAP, Oracle, and other business related software is essential. Needs Bachelors in Engineering/CS or in any related field combined with 5 years relevant experience in designing and developing computer software systems.

Please send resumes to the respective addresses:

3419 N. Kennicott Avenue, Suite C, Arlington Heights, IL 60004.

12777 Jones Road, Suite # 445, Houston, Texas 77070.

MIS Administrator - Install, monitor & maintain network system software incl. operating system, data bese & data comm. control & other utility prog; prov. tech. assist to users in operation & maint. of PCs; prov. analysis & recommendations for network/systems/infrastructure improv.; formulate & track budget expenses to ensure complience w/depart. constraints; coord. Syst. Integration, repair & installations w/internal resources & outside vendors; performs Network LAN mngt, troubleshoot, & setup network equip. (hubs, routers, brides & switches); write prog. docs. & users procedures & instructions; docs. & manages LAN/WAN architecture & network policies & comm. network; mngt TCP/IP, Internet access; prov. expertise in develop. security & firewall protection for the comp. network; configure, install, debug, troubleshoot & maintain performance of eng. computer syst incl. both hardware/software applications; maintain hardware/software invent.; maintain, manage & expand compeny's phone syst. incl. Pbx, switch mangt console & voicemail; works w/& install Autocad softw. BS in Electrical, Electronic or Systems Eng. & 1 yr exp in job offered. 40 hrs per wk M-F 9AM-6PM. Fax resume to RJ Behar & Company, Inc. Attn: Rober Behar. (954) 680-7781.

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Silicon Laboratories Inc. is hiring for the following positions:

Systems Design Engr (Senior Level): Research, design & develop system level algorithms for data conversion & communication eqpt mixed signal IC applications; apply computer & electrical eng'g analysis to set operational specs & then formulate & analyze algorithms req'ts. Min req't: Ph.D. degree in Electrical & Computer Eng'g. Job site: Austin, TX or Broomfield, CO.

Product Marketing Engr: Responsible for product strategy, definition, pricing & promotion on a family of mixed signal ICs for wireless products; provide customer support & interact with other companies' design, manufacturing and finance groups. Min req't: BSEE or BSCE plus 2 yrs. exp.

Jobsite: Austin, TX. Please send ad & resume to HR Dept, Silicon Laboratories Inc., 4635 Boston Lane, Austin, TX 78735.

Programmer Analyst (multiple openings) - Design, develop, test and implement computer applications using one (1) or more of the following: RPG/400, AS/400, ILE/RPG, CL/400, SQL/400, Visual Basic and/or C++. Req's. Bach's in CS, Systems Analysis, CIS, MIS, Computer Engg., Computer Sci and Engg., Electrical Engg., Electronic Engg. or Math or its equiv. in edu. and exp. plus 2 yrs exp. in job offered or 2 yrs exp. in a related occup. as a Programmer, Programmer Analyst, Systems Analyst, Senior Systems Analyst, Software Engineer or Consultant. Will accept 3 yrs of college edu. plus 3 yrs exp. in job offered or in a related occup. in lieu of the req'd edu. and exp. Will also accept any equally suitable combination of edu., training and/or exp. which would qualify an applicant to perform the duties of job offered. $83,387.20/yr., 40 hrs/wk., 8a-5p, M-F. Submit resume to MDCD/ESA, P.O. Box 11170, Detroit, MI 48211-1170. Ref. No. 210492. Employer Paid Ad.

VICE PRESIDENT OF IT OPERATIONS - Los Angeles. Direct management & strategic development of IT operations of worldwide publisher of interactive entertainment & productivity software. Bachelor's in computer sci., Computer studies information systems or engineering + 6 yrs experience in job offered or 6 yrs experience managing IT operations, including managerial responsibility for design & administration of enterprise-wide info systems. Must have knowledge of network infrastructure, directory services & digital asset mgt systems. Must be fluent in spoken & written French, including IT terminology. Send resume & letter to HR VPIT, Vivendi Universal Games, Inc., 6080 Center Dr., Los Angeles, CA 90045.

Senior Analyst (Oracle Applications and Databases) needed in the analysis, architecture, administration, maintenance, design, and implementation of Oracle Applications and Databases, using advanced knowledge of computer science and engineering es well as particular computer utilities. Bachelor's Degree in Computer Science or Computer Science Engineering required plus prior work experience with Oracle Applications and Databases. Positions in California and Illinois available. Send resume to Mr. Brian Burke, Links Technology Solutions, Inc., 444 East State Parkway, Suite 219, Schaumburg, IL 60173.

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(Requires Masters degree and two years experience.) - Job entails and requires experience in design, development and implementation of enterprise level applications using C, VC++, .NET and Oracle; design and development ex-perience must include Unix, NT and IRIX platforms. Attractive compensation package. Send resumes to Calvin Whittington, The Library Corporation, Research Park, Inwood, WV 25428.

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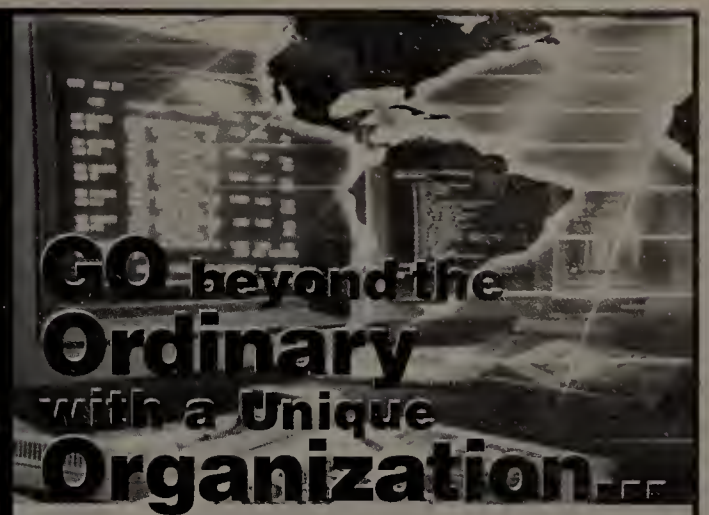

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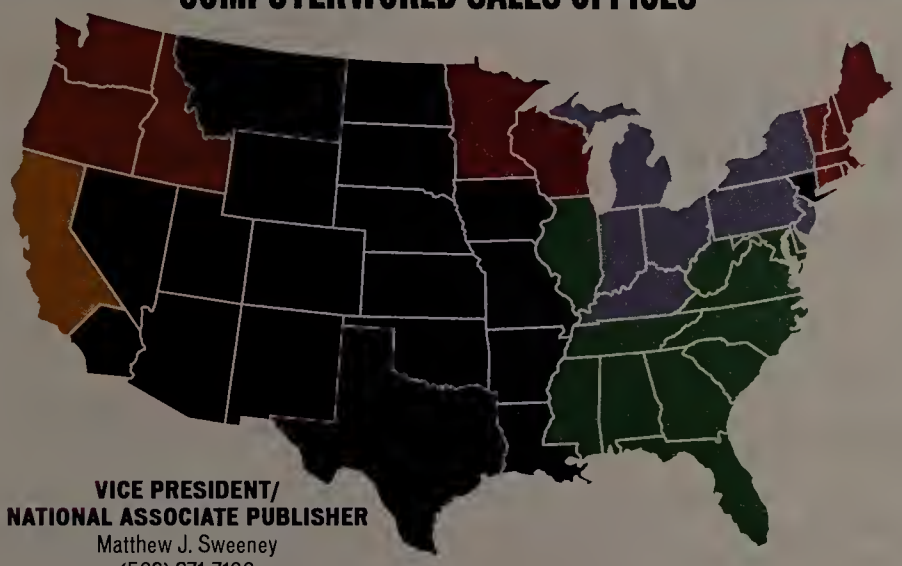

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CONTRIBUTING WRITERS

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GENERAL INFORMATION

TELEPHONE/FAX
Main phone number.... (508) 879-0700
All editors unless otherwise noted below
Main fax number..... (508) 875-8931
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Privacy Law

and database security.

The new law, SB 1386, requires companies to inform customers when their names — in combination with either their Social Security numbers, driver's license numbers or credit/debit card numbers with personal identification numbers — have been accessed by an unauthorized person [QuickLink 38357].

But confusion about what some observers characterize as a poorly written piece of legislation has given way to panic during the past two weeks, officials in the IT security and legal sectors said.

"Companies are literally shocked by this law, and many big companies are terrified," said Bob Walters, CEO of Teros Inc. in Santa Clara, Calif.

"Under a broad reading of 1386, even virus incidents that corrupt large amounts of data must be reported, even if there is no compromise of personal information," said Michael R. Overly, a partner at the Los Angeles office of law firm Foley & Lardner. "Very large class-action lawsuits are on the horizon."

No Mention of Standards

Under the law, the theft of data that's encrypted doesn't have to be reported. But because the law makes no mention of industry security standards, particularly the appropriate level of encryption needed to protect customer data, some companies may feel forced into taking drastic, costly actions, said Overly.

"What some companies are thinking of doing is assigning a random number to a customer name in one database and linking that random number to the personally identifiable information stored in a completely separate database," he said. "This would require major changes to large company databases."

Eric Beasley, senior network administrator at Baker Hill Corp., an application service provider to the financial industry, said that although the burden would be on financial institutions to notify customers of breaches, the new law has forced his company to purchase a Web application firewall from Teros and study database encryption options.

But performance issues are a concern with encryption, he said. Consequently, Carmel, Ind.-based Baker Hill is studying a possible move from the 32- to the 64-bit version of Microsoft SQL Server, which promises considerably higher performance. "That holds the promise of being able to do encryption without significantly reducing the performance we have today," Beasley said.

Network performance is far from the only issue facing companies. Don Ulsch, managing director and CEO of Janus Risk Management Inc. in Marlboro, Mass., said SB 1386 cuts across virtually every corporate function, including IT security, physical security, classification management, process linkage, human resources operations and environmental monitoring.

According to Ulsch, the new law will put an even higher premium on internal monitoring, access control and personnel risk management because it "will make it easier to conduct internal sabotage operations by purposefully breaching security in order to financially and legally jeopardize the company."

Customer-tracking tools and network monitoring software capable of differentiating between genuine performance problems and security incidents that affect performance will also be critical in helping companies determine when they must make a public report, said Rajeev Khanolkar, CEO of netForensics Inc. in Edison, N.J. "If you don't know what has been compromised, you may be forced to disclose a potential compromise of your entire database," he said.

The new law may also change the way companies view and deploy wireless networks, said Ulsch. "With so much at risk, companies will have to look very seriously at wireless and the security implications," he said.

But Overly said there may be a bigger problem on the not-too-distant horizon. "Look what has happened with spam," he said. "We now have dozens of different spam laws. If individual states start doing what California is doing, companies could be faced with every state having different security requirements." ◗

CHECKLIST

Preparing for SB 1386:

- **Encrypt all** customer data. Stolen data that's encrypted doesn't have to be reported.
- **Don't collect** any customer data you don't need.
- **Don't store/link** customer names directly to Social Security numbers, driver's license numbers or financial access codes.
- **Invest in** tools that do customer tracking and internal employee monitoring/access control.
- **Investigate wireless** security protections.

MORE THIS ISSUE

Computerworld's Robert L. Mitchell discusses ways companies can brace for the spate of new data privacy laws. **Page 34**

Continued from page 1

European VAT

tions, the company set up a subsidiary in London. That lets it charge the U.K. VAT rate of 17.5% to all European customers who download products from its clients.

Ronning said the centralized operation includes systems that can handle all European business, including databases that correlate the locations of customers and track the VATs in different jurisdictions for comparative purposes.

By July 1, companies based outside the EU must register with European tax authorities to levy, collect and remit the VAT on sales of various digital goods and services.

Under a directive issued by the EU in May 2002, companies that don't have a physical presence in an EU member nation must assess the tax at the rates charged by the countries where individual customers are located.

AOL International, a division of New York-based AOL Time Warner Inc., has about 6.3 million dial-up and broadband customers in Europe and in response to the VAT has centralized its Internet service provider operations for the EU in Luxembourg, said spokeswoman Mia Kulla.

"If we hadn't done this, we would have had to comply with 15 different tax regimes, which was not a viable business option," Kulla said. She declined to comment on how much it has cost AOL International to set up the operations in Luxembourg but said the VAT won't result in higher prices for customers.

On the other hand, Scott Pendergrast, co-founder of Fictionwise Inc. in Chatham, N.J., said it wouldn't have been economically feasible to invest in a European operation. Instead, the seller of e-books is preparing to collect the tax in different countries, although Pendergrast said it's doing so reluctantly.

"I think paying it is ridiculous, and it's unfair for a foreign government to make me a tax collector," he said. "I have enough trouble keeping track of the the U.S. tax code."

Pendergrast said he plans to assign one of Fictionwise's two internal developers to write code to automate the VAT assessment and remittance process, although he believes the company is exempt from the tax for now because its annual European sales total less than 100,000 euros ($114,283). However, an EU spokesman said there is no such exemption.

Some businesses are questioning whether they need to collect the new tax on the grounds that European courts wouldn't have jurisdiction over them, said Jon Abolins, vice president of tax and government affairs at Taxware, a Salem, Mass.-based division of GovOne Solutions LP that develops e-commerce software.

Taxware has been hearing from some customers that are "scrambling" to get ready for the VAT, but others are asking if they can just ignore it, Abolins said. He has been advising companies not to do so, because there is speculation that EU countries might not fight to protect the intellectual property rights of sellers that fail to collect the VAT. "I don't think any business wants to be characterized in the EU as a tax cheat," he added.

Matthew King, a trade spokesman for the European Commission, the EU's executive arm, said it will be up to each of the 15 nations to decide how to enforce the VAT directive. According to King, the EU approved the VAT plan after content providers based in Europe complained that they were at a competitive disadvantage because they already have to collect the tax. ◗

LOCATION CHALLENGES

Companies say it won't be easy to confirm which EU country a customer is based in:

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FRANK HAYES ■ FRANKLY SPEAKING

Sabotage Solution

SAY YOU'RE AN IT MANAGER with a project that's doomed. You know it's doomed. Everyone on the project team knows it's doomed. Maybe it's underfunded, or the technology turned out to be half-baked, or it's beyond the skills of your team, or it's just hopelessly off the tracks. Maybe you argued against it, but it has powerful sponsorship and there's no way you can talk the powers that be into shutting it down.

Is it time for a little sabotage to put it out of your misery?

Of course, sabotage is wrong. We all know that. But which is worse: torpedoing a doomed project, or flushing time and budget and morale down the drain in a futile effort to make it work?

Or suppose some user's PC fails intermittently. It doesn't happen every day, but every time it does, the user loses time and work and a little more sanity. The user's manager is demanding that you fix the PC, but there's no problem you can identify and reproduce. You know the right solution is to replace the PC, but as long as it tests out OK on the bench, corporate policy says it must be put back in service.

Do you make sure it gets a little, er, help to fail on the bench, so that poor user can get a reliable PC again?

Now try this one: For the first time, your team has been assigned a user to help identify problems with an important application. The user doesn't understand how your shop does things, doesn't have the clout or charisma to overcome outsider status and has slowed progress to a crawl with all his questions and objections. And you know that if this project is completed, you'll have users on lots of future projects — all with the same problems.

Do you drive the project — and the user — straight into the ground, just to avoid all that trouble?

It's sad but true: Sabotage is a slippery slope. At heart, it's about breaking things instead of making them work, destroying instead of building. It's an ugly concept that runs counter to everything you're supposed to be doing, a notion nasty enough that in most IT shops it's never even mentioned out loud.

Trouble is, in most IT shops it's also a reality. In fact, it's a necessity.

Sabotage shouldn't happen. But then, neither should ill-conceived projects or wrong-headed policies. And ugly as it may be, sometimes sabotage is the least ugly of the real options available.

Ironic, isn't it? You want your IT people to do what's right for users and the business — to keep time and effort and budget from being wasted. But sometimes they can't do that without a little sabotage. And you can't encourage them to keep doing what's right for users and the business unless you tolerate that sabotage.

But if you're *too* tolerant of it, you'll end up with self-serving sabotage — the kind that doesn't help users or the business at all, but is just a convenient way to cut corners and avoid challenges.

How can you be sure you'll get only the right kind of sabotage? You can't. Remember, sabotage is unmentionable. You can't clearly explain what kind is OK and what's not. And you can't officially support it, because by definition sabotage is against the rules.

So you'll have to depend on nudges and hints and the good judgment of your staff. You'll also need to watch out for cases of the wrong kind of sabotage, to stop them quickly and publicly. If you can't explain, at least you want to offer lots of examples.

Frank Hayes, *Computerworld*'s senior news columnist, has covered IT for more than 20 years. Contact him at frank_hayes@computerworld.com.

Does all this subtlety and ambiguity make you uncomfortable? Good — it should. You really shouldn't need sabotage to serve users and your business. That discomfort should motivate you to keep chopping away at the things that make sabotage necessary — the foolish rules, the politically motivated projects, the really awful decisions.

Because until you can get rid of them, you're stuck with sabotage. ◗

You Get What You Measure

Network techs at this manufacturer are surprised when they get a poor evaluation – the networks are running fine with few user complaints. "That's the problem," says IT pilot fish. "Their metric is how many trouble tickets they resolve and how quickly." So techs take to randomly unplugging a hub, waiting for trouble tickets to come in, then restarting the hub. Reports fish, "They were rated 'excellent' on their next review."

SHARK TANK

Shocking

"My screen is electrifying the table and shocking me," user tells support pilot fish. "Touch the keyboard, and you'll see." Fish does, and feels a small vibration. "That isn't vibration, that's electric current," user insists. "I know what an electric current feels like." Looking around, fish spots a rarely used IBM Selectric typewriter at the other end of the wooden table. She turns it off – and when the vibration stops, user asks, "Do you think it was the typewriter that was shocking me?"

Penny-Wise

When an error brings down this company's Web site shopping-cart engine on a Friday afternoon, pilot fish can't restore the corrupted file before tracking down the boss, who has already left. Is the entire site down? irritated boss asks once he's finally located. "We're not spending money on overtime to restore one @#$%! file!" Sighs fish, "We got the file restored at the end of the day Monday. Based on the Web access logs, at least $17,200 wasn't spent with us over the weekend because of the outage."

It Gains Something In Translation

Boss's fast new CD burner needs the right media, so tech pilot fish asks the office secretary to order some recordable CDs rated at 40X. "Imagine my surprise later in the day," fish groans, "to hear the water-cooler discussion about my trying to acquire 40 X-rated CDs for my department!"

Very Fault-Tolerant Indeed

Users are complaining that this branch office's network connection is too slow, so IT pilot fish checks into the cost of a T1 line. "Thinking I can reduce latency by staying on the same network as the main office, I call the network admin there," says fish. Who was the provider you used for the second T1 line you installed for fault tolerance? fish asks – and is stunned to learn that both T1 lines come from the same Internet service provider that's currently "recovering from" bankruptcy. Sighs fish, "The IT manager didn't want to have to look at two bills each month."

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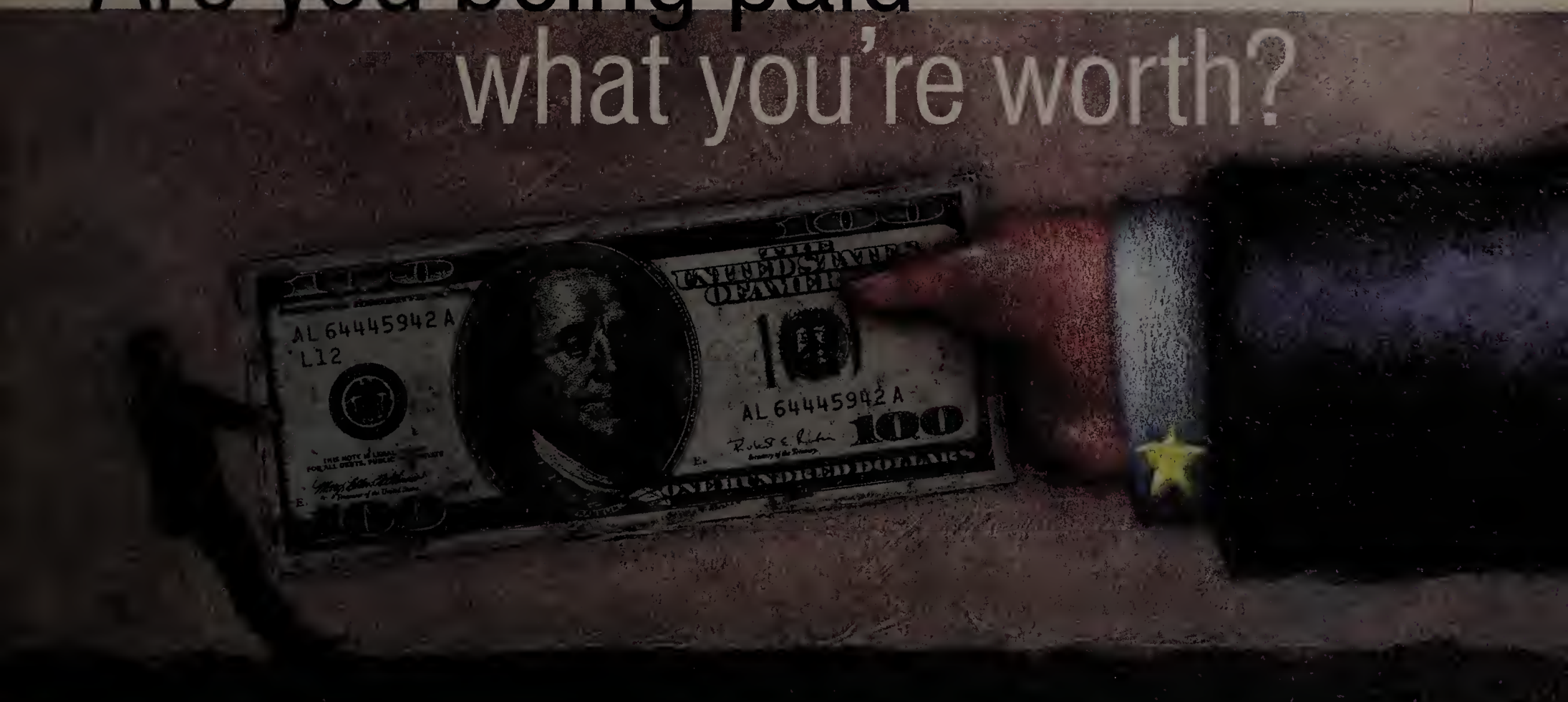

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